August · 1956

finish

THE MAGAZINE OF

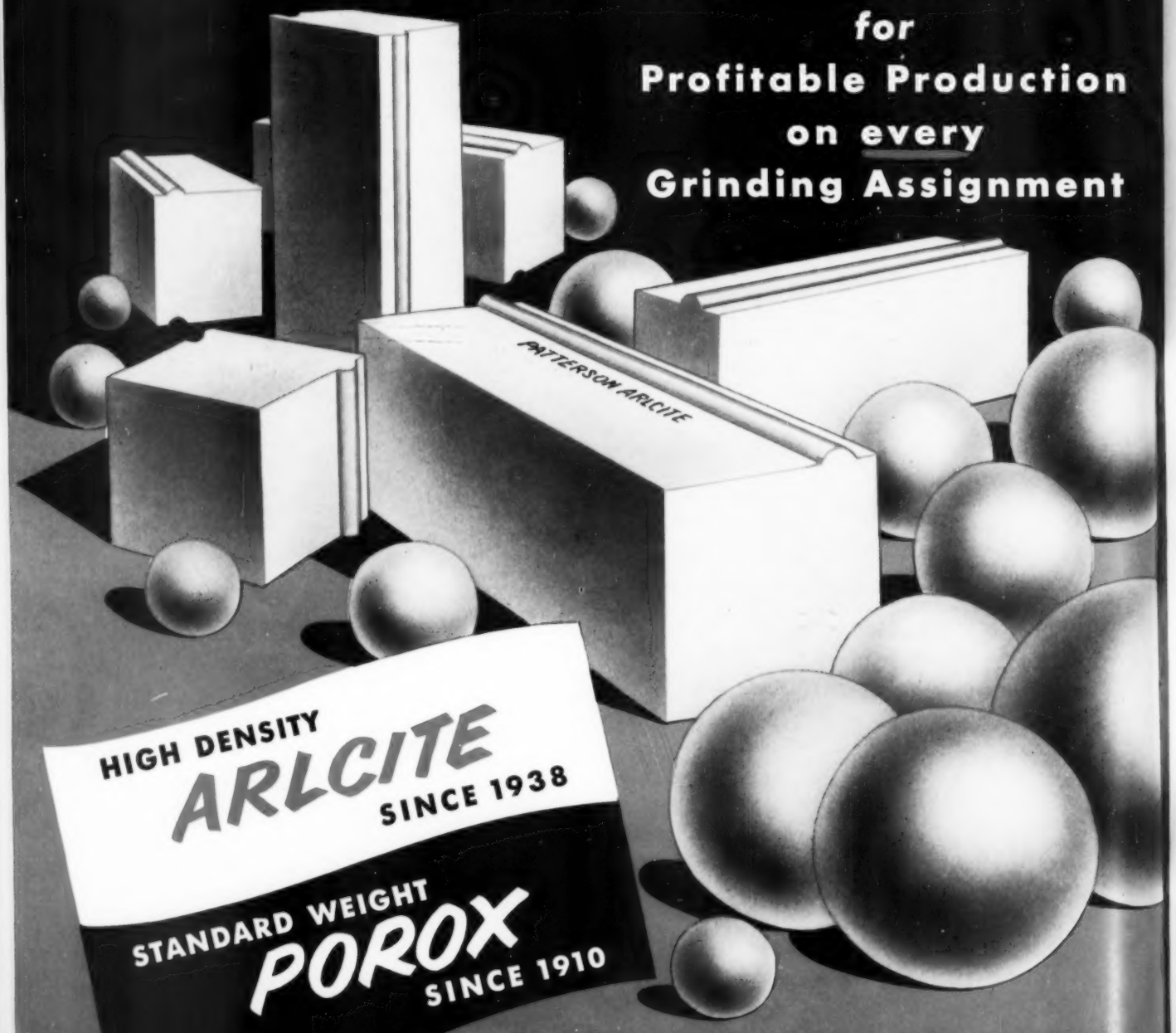
Appliance AND

Metal Products MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

Patterson

HIGH DENSITY **ARLCITE**
LININGS AND GRINDING MEDIA
for
Profitable Production
on every
Grinding Assignment



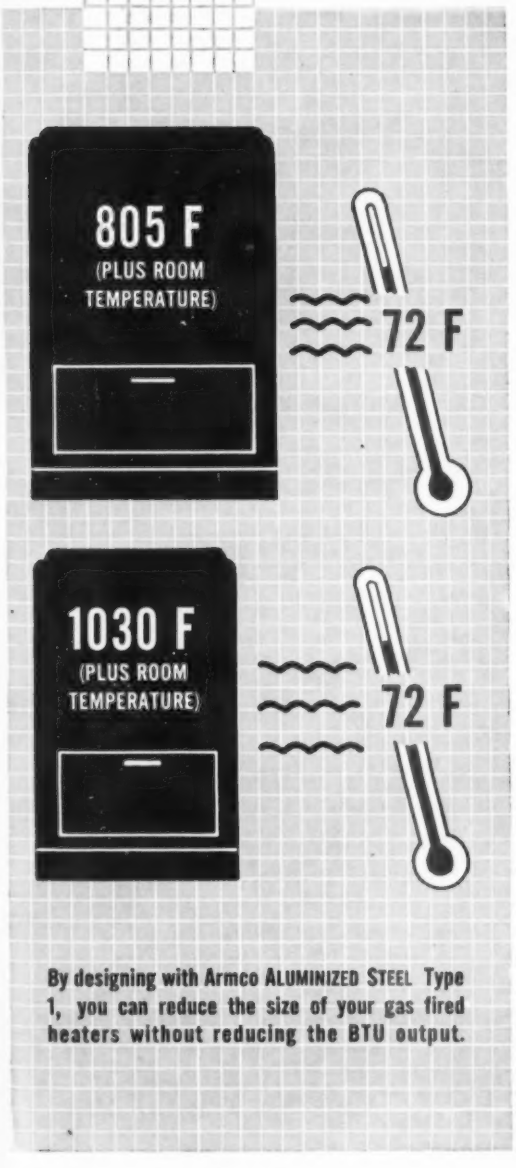
HIGH DENSITY
ARLCITE
SINCE 1938

STANDARD WEIGHT
POROX
SINCE 1910

The Patterson Foundry and Machine Company
East Liverpool, Ohio, U. S. A.
NEW YORK, BOSTON, BALTIMORE, PHILADELPHIA, PITTSBURGH, DETROIT, CINCINNATI, ATLANTA, CHICAGO, ST. LOUIS, HOUSTON, DENVER, LOS ANGELES, SAN FRANCISCO, SEATTLE

The Patterson Foundry and Machine Company, (Canada) Limited
Toronto, Canada
MONTREAL

Design for Higher Operating Temperatures
with Armco ALUMINIZED STEEL



By designing with Armco ALUMINIZED STEEL Type 1, you can reduce the size of your gas fired heaters without reducing the BTU output.

Now, the American Gas Association permits the use of hot-dip aluminum coated steel for heating elements operating at 1030 F (plus room temperature) in A.G.A. approved gas fired heating appliances. Only the stainless steels can get A.G.A. approval at higher operating temperatures.

A.G.A. defines aluminum coated steel as a material "in which the bond between the steel and the aluminum is an iron aluminum alloy." Armco ALUMINIZED STEEL® Type 1 meets that definition.

YOU GET THESE ADVANTAGES

Here are the advantages of designing with Armco ALUMINIZED STEEL:
1. More BTU output from same size unit
2. Same BTU output from smaller size unit
3. Smaller units to meet today's trend toward space saving appliances
4. Cost savings two ways:
First, ALUMINIZED STEEL is less expensive than other materials permitted by A.G.A. for the same or higher temperature.
Second, ALUMINIZED STEEL saves material by permitting a reduction in unit size.

IF HEAT IS YOUR PROBLEM

Of course, you don't have to be a gas appliance manufacturer to take advantage of the heat resisting qualities of ALUMINIZED STEEL. For many years, Armco customers have used this special steel in temperatures up to 1250 F. So if your product utilizes heat, why not consider Armco ALUMINIZED STEEL Type 1?

For complete information on this economical heat resistant material, just fill in and mail the coupon to the address below.

Armco Steel Corporation
1986 Curtis Street, Middletown, Ohio
Send me full information on Armco ALUMINIZED STEEL Type 1 for heat resistance.
We manufacture

NAME _____

COMPANY _____

STREET _____

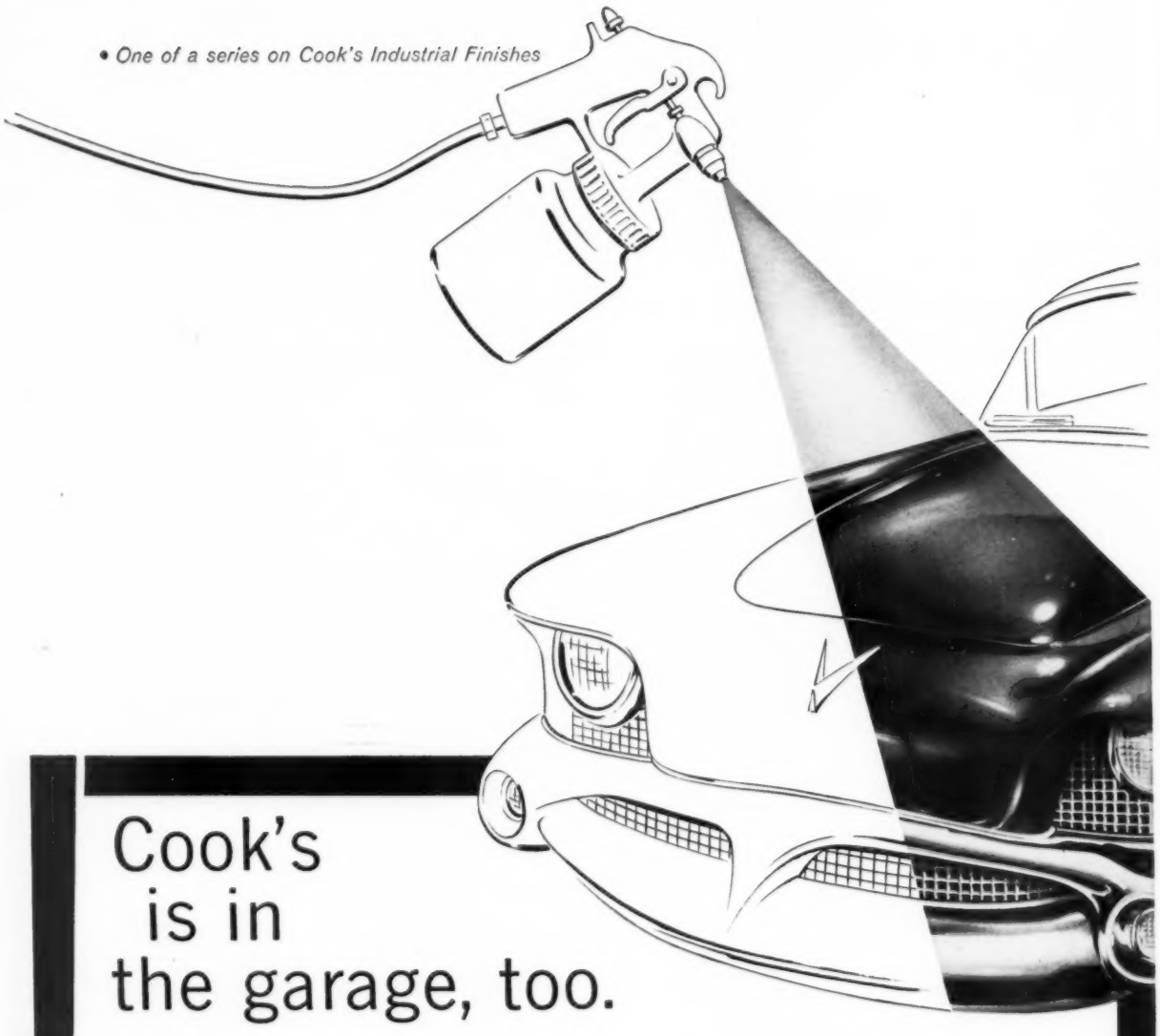
CITY _____ ZONE _____ STATE _____

ARMCO STEEL CORPORATION

1986 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

• *One of a series on Cook's Industrial Finishes*



Cook's is in the garage, too.

It may be in **your** garage. For many of the smartest colors that protect and beautify twelve American makes of automobiles are Cook's custom-made automotive finishes.

For that matter, the range and refrigerator in your kitchen, the awnings on your house, the train you ride, your bass plug, and even your wife's bobby pins may be finished with one of Cook's custom-made industrial paints and coatings.

All these finishes – plus hundreds more – are products made on contract by Cook's to meet specific requirements of manufacturers. Billions of food containers have been lined with a Cook-discovered protective coating. We found a finish that even helps prevent broom-handle splinters.

What's your problem? Perhaps we can be of help. Cook's research, laboratory, and technical-industrial services are at your command. Call on us to help formulate new or unusual finishes. Consult us when you want long-wearing finishes of standard quality or formulation. Ask us for help in solving application problems. For more than 40 years we've served industry with the right finish at the right price.

COOK'S PAINTS

COOK PAINT & VARNISH CO. / 1404 Knox Street, North Kansas City, Missouri
Factories: Kansas City • Detroit • Houston
One of the first ten of America's 1,500 paint manufacturers

© 1956

August • 1956

VOL. 13 • NO. 8

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finish

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A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is $5.00 per year, domestic. To all other countries $8.00 per year (U.S. funds). Single copy price $1.00

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BPA NBP

finish

METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

finish . . .

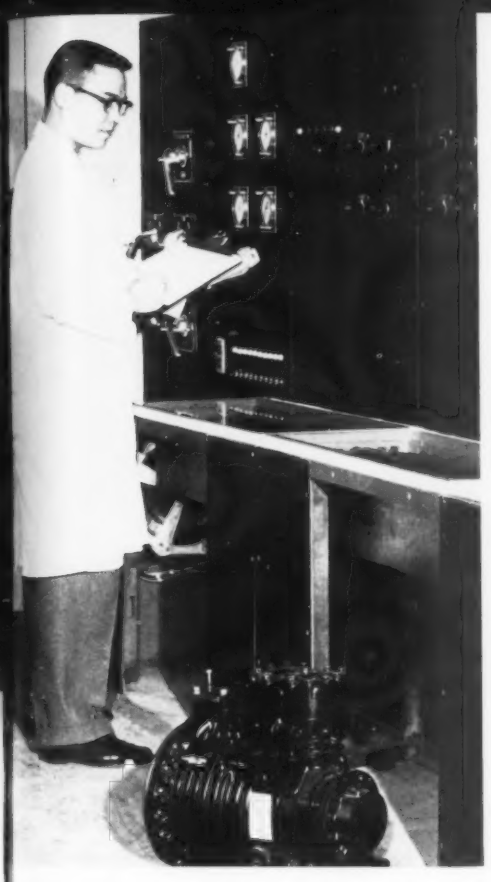
. . . foto-news

Kelvinator Sales expansion *is noted here as Hollander & Co., Inc., signs in as the exclusive wholesale distributor for Kelvinator and Leonard appliances in 101 counties in Illinois, Missouri and St. Louis. Signing is S. H. Hollander. Seated at left is H. L. Travis, Kelvinator general sales manager. Standing, (L to R) are J. Donohue, Kelvinator zone manager; A. Gross, Hollander VP; W. Jeffrey, Kelvinator VP-sales; Stuart Hollander, and H. S. Hollander, Hollander Chairman of the board.*

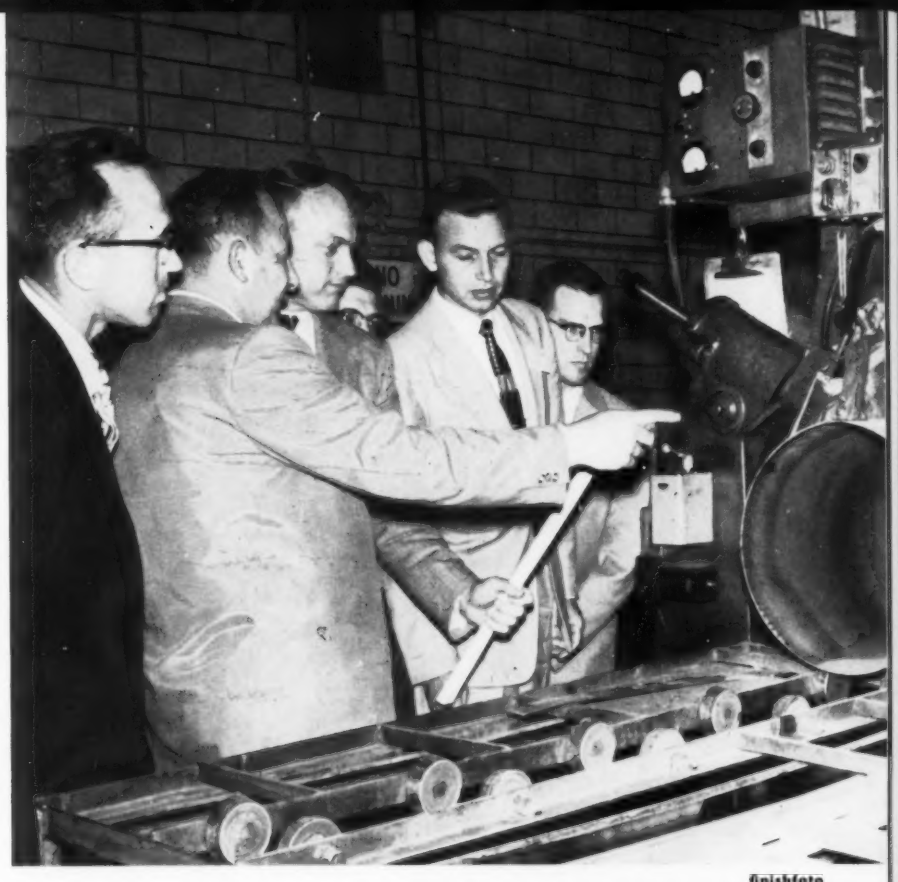
Distinguished Public Service Award *by the Navy was recently awarded Fred Maytag, II, Maytag's president, for his company's sponsorship of the CBS Network show "Navy Log."*

Visionary promotion *is illustrated in this photo showing Amana TV star Phil "Sergeant Bilko" Silvers holding prop glasses like his own, given to children in traffic-building promotion for Amana productions. Included in the promotion —a chance to win a freezer-refrigerator.*

Sales force gets pinpointed *at the home market by the Norge division of Borg-Warner as this "teacher group" of regional sales managers gets briefed by National Sales Manager Charles H. Smith. Using a "Five Point" program, regional sales managers will spend two full days with each distributor in their areas.*

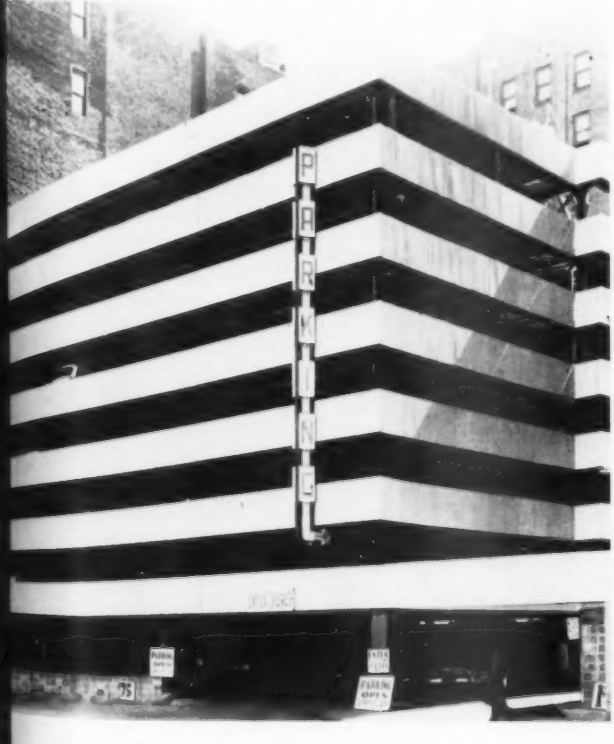


ew control panel *for analysis of compressor rformance gets workout at Frigidaire's newly expanded air conditioning laboratories.*



finishfoto

Hotpoint tour *by AIEE members who attended the 7th Annual Appliance Technical conference was well attended and a high point of the meeting. Here a group are given some details on one of the welding operations in the plant's facilities.*



First 7-story building *to use porcelain enamel throughout is the new Pigeon-Hole parking garage on West 55th Street, New York City. The panels were fabricated and installed by Architectural Porcelain Fabricators, Inc., Bronx, N.Y.*

Foto by Ruth Harmon

Porcelain Internationale, *that's the setting for this picture taken in Old Mexico in a typical Indian Market. Taken near Oaxaca, Mex., it shows primitive clay pots in foreground with porcelain enamelware. Hand-made clay water jugs are in background of picture behind enamelware.*

MACCO MACHINE CLEANER NO. 71-D

a phosphate cleaner and rust inhibitor

GIVES BETTER PAINT ADHESION

71-D prevents rust spread and rust blisters

A MACCO CASE HISTORY*

As in all fields today, purchasers of metal products are constantly demanding more and more in the quality of their paint finishes.

By far the most efficient and economical method of preparing metals for the finest and most enduring paint job is by use of Macco M.C. No. 71-D. Laboratory and shop tests prove that, on steel, cast iron, aluminum or die cast, Macco M.C. No. 71-D provides a corrosion-resistant phosphate coating comparable in quality to that formerly available only through expensive and elaborate methods of preparation.

TESTED ADVANTAGES OF MACCO M.C. No. 71-D CLEANER

1. Cleans soil from metals and etches in one operation.
2. More economical because of longer life of solution.
3. Gives microscopic phosphate coating, greatly aiding in paint adhesion and corrosion resistance.
4. No special equipment required.
5. Never hardens in the drum.
6. Gives excellent protection against rust prior to painting.
7. Simple to control solution.
8. Can be run in conventional one, two, or three stage washers, as well as in other types.

Use Macco M.C. No. 71-D Cleaner and Phosphate Coating and add immeasurable quality to the finish of your product.

*Actual case history, names, etc. can be had by writing today to

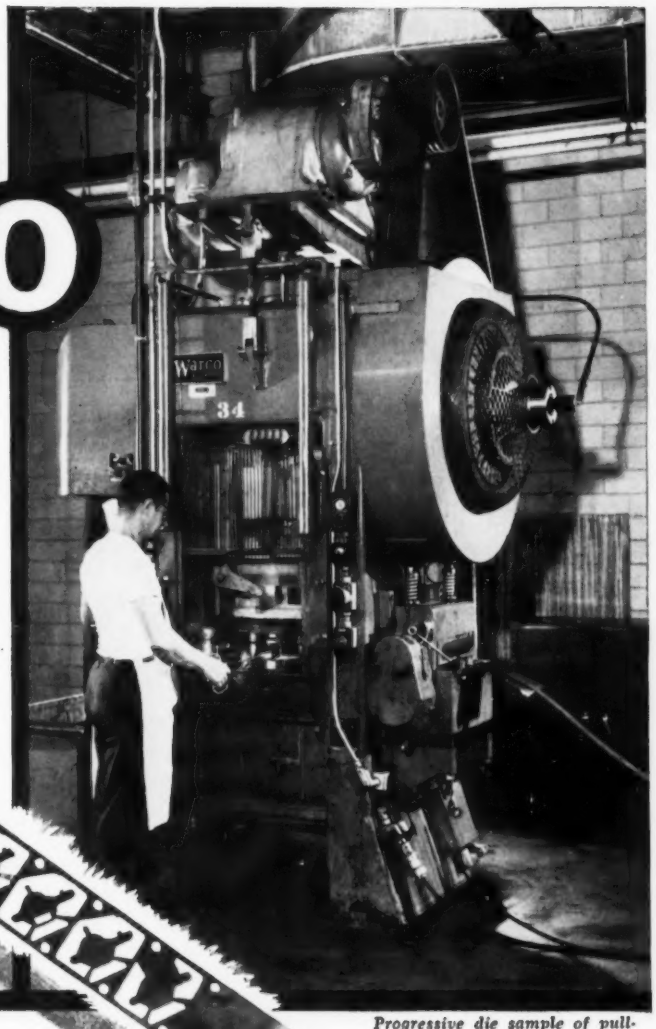
LEADING METAL PROCESSORS
indorse its use for . . .
- CAMERAS
- TAPE RECORDERS
- TV CABINETS
- LAWN FURNITURE
- APPLIANCES
- MOLDING
- TOYS, Etc.

Makers of Better Metal-Working Compounds Since 1931

MACCO PRODUCTS COMPANY

9210 SOUTH SANGAMON STREET • CHICAGO 20, ILLINOIS

How Warco® PRESSES help Kodak make precision cameras



Progressive die sample of pull-down claws for Kodak's Cine-Kodak Medallion 8 Camera. Warco Press produces about 6,000 per hour.

For the past eight years, Eastman Kodak Company has been using Warco Presses to stamp out many of the components used in their popular camera line. From time to time, as production demanded, Kodak has added to its Warco equipment and has found it met specifications right down the line. The 75-ton High Speed press, above, is typical of the Warco equipment. Feeding directly from coil stock through progressive dies they blank, perforate, form and emboss. The press operates at speeds up to 100 strokes per minute, turning out as many as 6,000 completed pieces every hour.

You'll find more and more Warco Presses operating in plants, like Eastman Kodak where quality and long, trouble-free service are appreciated. *The Federal Machine and Welder Co., Warren, Ohio.*

Cine-Kodak Medallion 8

Brownie Holiday Flash

Brownie Hawkeye

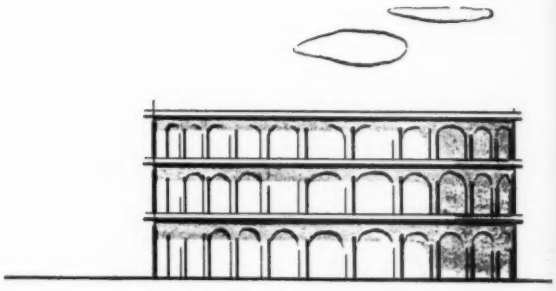
9872

Federal® WELDERS

Warco® PRESSES

The Federal Machine and Welder Company

WARREN, OHIO



this *Glass* shield,

while symbolic,

represents some of the things a master craftsman can do with glass. It can be bowed to fit any desired shape, it can be drilled and shaped to exact tolerances.

It can be tempered to impart extreme resistance to impact — that is why safety regulations demand glass as a safety barrier when danger exists.

Let glass improve the utility of your product while it beautifies it.

Let Marsco's craftsmen-engineering team impart to your product all the advantages of glass

Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- CLOCK & TIMER CRYSTALS
- OVEN DOORS
- RADAR EQUIPMENT
- AIRCRAFT ACCESSORIES
- PHOTOGRAPHIC EQUIPMENT
- LIGHT LENSES
- DIALS & NAME PLATES
- TELEVISION EQUIPMENT
- INSTRUMENTS
- MEDICAL EQUIPMENT

Special shapes for: Instruments, Gauges, Household and Industrial Appliances.

Marsco

MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.

QUALITY CONTROL

Every Step of the Way

Rigid quality control *every step of the way* is the Follansbee way of producing cold rolled strip that will meet your most *exacting* specifications—and give you a better product. At Follansbee, quality is in the hands of experienced and skilled craftsmen who take pride in delivering the best cold rolled strip in the industry.

See your Follansbee representative. He can offer you the kind of service you need—plus Follansbee quality.

Our Careful Quality Control Will Make YOUR Product Better

FOLLANSBEE

STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

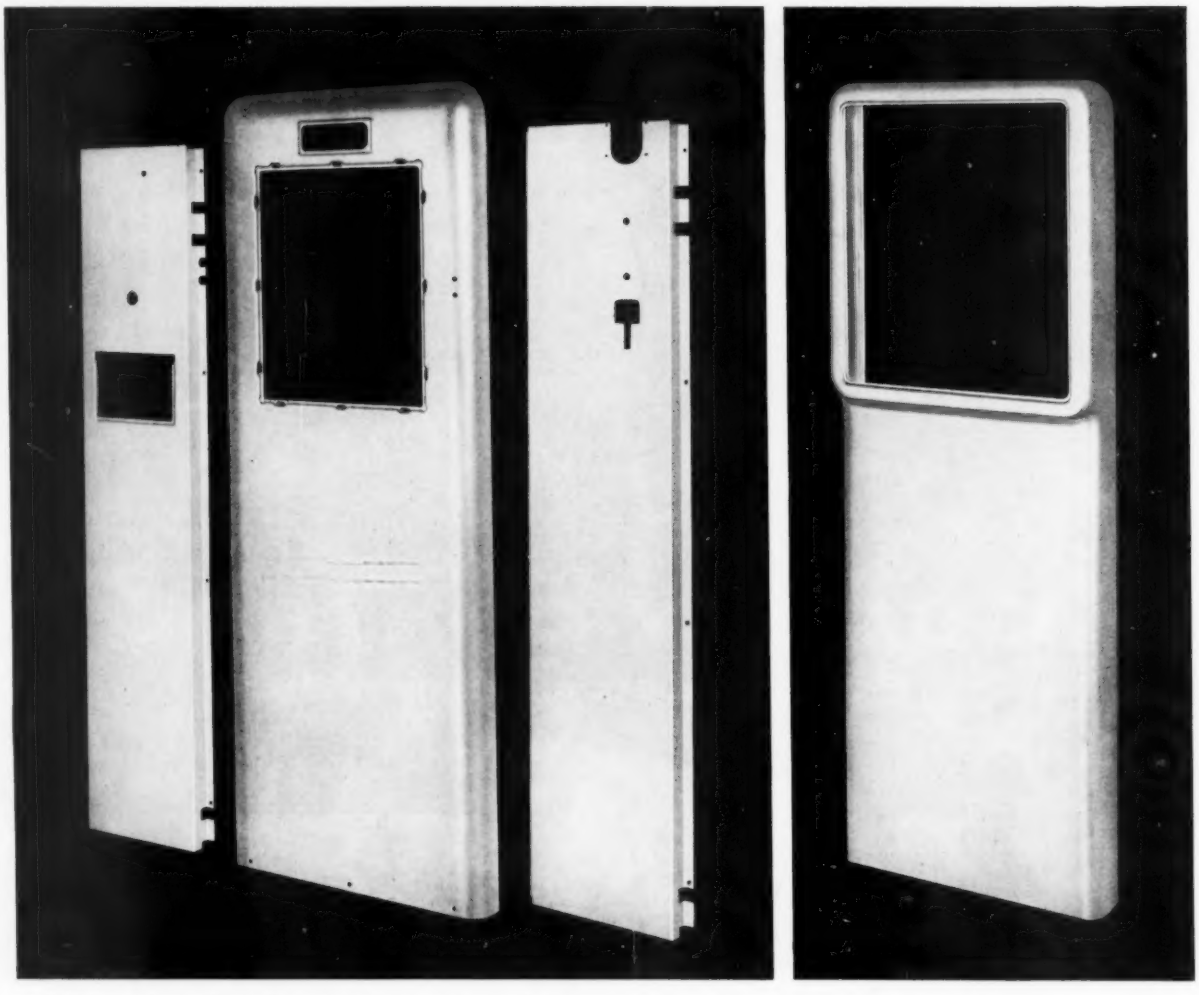
Cold Rolled Strip • Seamless Terne Roll Roofing • Polished Blue Sheets and Coils

Sales Offices in Principal Cities

QUALITY STAMPINGS

(MEDIUM AND LARGE)

produced economically for many industries



Immediately above—2 side and front panels of recently produced gasoline dispensing pumping cabinet. Front panel is 20½" x 54", side panels 11¾" x 50". At right is the front panel of another type cabinet produced at our plant, size 29½" x 54".

You get Quality stampings at reasonable prices because:

We analyze the stamping you want—

We determine the most economical way to produce it—

We develop and build the production dies—

We rearrange our press equipment to set up the most economical production line.

Remember—if you use medium or large stampings and you want quality—call Youngstown Metal Products. A phone call is all it takes.

METAL YOUNGSTOWN PRODUCTS

YOUNGSTOWN METAL PRODUCTS COMPANY

Youngstown 1, Ohio

THOSE *(appliance manufacturers)* who don't have the financial background and the willingness to "step up" to present competition will drop by the wayside.

Laundry equipment is the "trump card" in the white goods business.

By 1958 dryers will pass the automatic washer in unit sales.

Two pie plates and a tuna fish can may revolutionize home laundry results.

Rinsing is the secret of a successful automatic washer. Soft water is not the answer to good washing. Water conditioning had to be added to the *rinse* period.

Record home laundry equipment sales will top 6,200,000 units to furnish a strong platform for entire consumer goods business level this year.

Home laundry equipment — platform for '56 consumer goods sales

BRIEF COMMENTS FROM A STATEMENT *by Judson S. Sayre,* PRESIDENT, NORGE DIVISION, BORG-WARNER CORPORATION, CHICAGO

Combined unit sales of automatic and conventional washers, and clothes dryers may exceed those of automobiles this year. Sales will be 8 per cent higher than last year's 5,800,000 total, 48 per cent ahead of 1953, and triple those of 1946.

The performance fulfills a personal 18-year old dream, at a time to take up slack caused by a leveling off of refrigerator and range sales.

Another great contribution of automatic washing is the birth of the launderette installation, now providing employment to thousands and inexpensive laundering to millions.

Automatic washers are now in use in almost a third of America's homes.

Business will be highly competitive for the rest of the year, but those of us making home laundry equipment are holding trump cards. Personally, I look forward to the big fall laundry season with the same zest and excitement I felt back in 1938.

We are currently unveiling a new automatic washer line equipped with a startling new feature—the DISPENSER WHEEL — to apply automatically water conditioners now coming into ever-widening use in the home. Originator of the DISPENSER WHEEL was a Norge washer owner who took 2 pie plates (tins) and a tuna fish can and developed a prototype of the unit that has been made a part of the Norge 1957 line.

This water conditioning feature is designed to remove all soap or detergent at the rinse, eliminate "yellow tinge," "tattle-tale gray" and soften the clothes —all for $9.95 per unit.

New automatic washer and automatic gas and electric clothes dryer models with this and other features now are rolling from the production lines at the Herrin and Effingham, Ill., plants.

IN THE PHOTO, Norge executives examine a prototype and final version of the new Norge dispenser wheel. R. C. Connell, v.p.-sales, holds first version (made of two pie tins and a tuna fish can) while Norge President Jusdon Sayre, compares it with the version that now is the standard equipment on three 1957 Norge models—and is adaptable to any Norge automatic washer, made since 1951.

Norge retail sales up —

At retail, Norge automatic washers are 7 per cent ahead of last year and automatic clothes dryers 34 per cent ahead.

Industry home laundry sales soared from 4,700,000 in 1950 as a washer

to Page 34 →

the MILLS STORY...

offers continued

POSITIVE PROOF...

OF FINISH PULLING POWER

The first PERMA-VIEW advertisement appeared in July, 1950, *finish*. Mills Products, Inc., has carried a continuous monthly campaign (minimum of one black and white page each month) for six years—an occasional two-color spread has been used. Here's one of the rare instances where advertising results can definitely be measured . . . because . . . Mills Products, Inc. travels no field men, all contacts being made by the principals from the factory . . . and . . . *finish* is the *only advertising medium* used for promoting PERMA-VIEW windows.

Here is a brief of the results from this continuous campaign: 100% increase in number of accounts served and world-wide inquiries within the first year. Continued increase in customers at the same rate for the second year.

The accompanying letter tells the story of the third, fourth, fifth and sixth year's results with a sales gain of over 90% for each of the last two years.

Here is POSITIVE PROOF that, if you have the right material, equipment, component or service for the home appliance and fabricated metal products manufacturing field . . . and present your facts properly in *finish* . . . the men who engineer and build the metal products plus those who purchase for and manage producing plants, will respond.

NBP

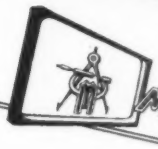
BPA

NOTE: Mills Products, Inc. serves only one segment of *finish* readership—the producers of gas and electric ranges — *finish* circulation covers the key men of all appliance producers plus a broad group of other fabricated metal products manufacturers.

Over 12 years of editorial service to the appliance and fabricated metal products field. . . . The only publication in its field with 100% verified circulation. Verified under BPA audit regulations.

THE MAGAZINE OF
Appliance AND
Metal Products MANUFACTURING

...of advertising RESULTS



MILLS PRODUCTS • Incorporated

Manufacturers of PERMA-VIEW *Sealed* OVEN DOOR WINDOWS

Telephone: MARKET 4-2256

1015 WEST MAPLE ROAD
WALLED LAKE, MICHIGAN

June 20, 1956

Mr. Dana Chase
FINISH Magazine
Elmhurst, Ill.

Dear Mr. Chase:

It is a pleasure to be able to report to you that, following the completion of our sixth year of continuous advertising in FINISH magazine, sales of PERMA-VIEW windows continue to increase steadily as does the number of range manufacturing companies using our windows. As at the end of each previous year, I will give you a review of our sales results:

At the end of one year -- 100% increase in the number of accounts served. At the end of three years --400% increase in sales and a new plant completed. At the end of four years -- additional production facilities required for a gain in business of 686%.

Last year, following five years of continuous advertising, we reported a 92% gain for the 12-month period immediately preceding and a total of 1302% gain for the year as compared with the year preceding the start of our advertising campaign.

June marked the close of our sixth year of continuous monthly advertising in FINISH and, for the second straight year, we have exceeded a 90% gain over the preceding 12-month period.

Although it seems incredible, even to us, the total percentage of gain for the latest 12-month period over the 12-month period immediately preceding the start of our advertising campaign now reads 2005%.

As you know, we served only a few of the important range manufacturers when we started our campaign to the appliance industry but now you can see PERMA-VIEW windows in the ranges (both free standing and built-in) of over 50 of the leading range producers.

You may feel free to use this letter as you have the previous ones, since we at Mills continue our enthusiasm for the publication that has played so important a part in our solid growth picture.

Yours very truly,

MILLS PRODUCTS, INC.

Herbert E. Mills,

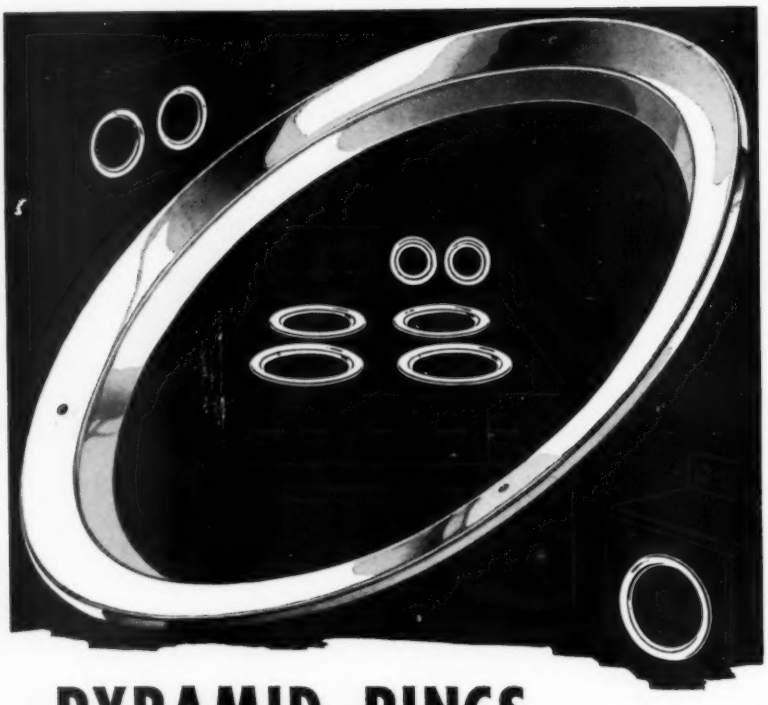
Herbert E. Mills,
President

STOVE HANDLES

OVEN DOOR WINDOWS

CHROM

Dana Chase
PUBLICATIONS
YORK STREET
AT PARK AVENUE
ELMHURST, ILLINOIS



PYRAMID RINGS *SPARK SALES*

These advantages are yours with *Roll Formed Rings* . . . sparkling appearance, lasting brightness and low cost fabrication. Rings are a natural for roll forming because machines are set to roll mouldings in continuous spirals—thus eliminating raw material waste. And the size range is almost limitless, from rings a few inches across to huge circles many feet in diameter.

Pyramid is equipped to serve you whether your requirements be for circular, curved or straight *sales stimulating trim.* Write today for your "Plan Book of Metal Mouldings."

Pyramid Mouldings Inc.
5365 WEST ARMSTRONG AVE., CHICAGO 30, ILL.
NEW YORK... CALIFORNIA

SEND FOR YOUR FREE COPY OF "PLAN BOOK OF METAL MOULDINGS"

No one connected with the design or manufacture of any appliance should be without a copy of this book containing hundreds of standard and special mouldings. Send for your free copy today.

Without obligation, please send copy of "Plan Book of Metal Mouldings." F-8

Name_____ Title_____

Firm_____

Address_____

MEETINGS

PACKAGING INSTITUTE FORUM

Packaging Institute, 18th Annual Forum, Hotel Statler, Cleveland, September 10-12.

PEI ANNUAL MEETING

Porcelain Enamel Institute, 25th Annual Meeting, The Broadmoor, Colorado Springs, Colorado, September 19-21.

ELECTRONICS CONFERENCE

12th annual National Electronics Conference, Hotel Sherman, Chicago, October 1-3.

ELECTRICAL ENGINEERS MEETING

American Institute of Electrical Engineers, Fall General Meeting, Morrison Hotel, Chicago, October 1-5.

GAS ASSN. CONVENTION

American Gas Association, Annual Convention, Atlantic City, N. J., October 15-17.

PACKAGING EXPOSITION

Society of Industrial Packaging and Materials Handling Engineers, 11th Annual National Protective Packaging and Materials Handling Exposition, Kiel Auditorium, St. Louis, Mo., October 23-25.

SAFETY CONGRESS & EXPOSITION

44th National Safety Congress and Exposition, Conrad Hilton, Congress, Morrison and La Salle hotels, Chicago, October 22-26.

HOME LAUNDRY CONFERENCE

Tenth National Home Laundry Conference, American Home Laundry Manufacturers Association, Conrad Hilton Hotel, Chicago, November 1-2.

ELECTRICAL MFRS. MEETING

National Electrical Manufacturers Association, Traymore Hotel, Atlantic City, New Jersey, November 12-16.

REFRIGERATING ENGRS. MEET

Semi-annual Meeting, American Society of Refrigerating Engineers, Boston, Mass., November 25-28.

MECHANICAL ENGINEERS MEET

The American Society of Mechanical Engineers, Annual Meeting, Statler & McAlpin Hotels, New York, N. Y., November 25-30.

Since 1939...

the Maytag Wringer-Washer has been finished with Du Pont DULUX® Enamel

DU PONT
REG. U.S. PAT. OFF.

"DULUX" ENAMEL

Better Things for Better Living . . . *through Chemistry*

America's leading home-appliance finish

Over 53,000,000 major home-appliance units now in service are finished with Du Pont DULUX Enamel.

THE EFFICIENCY and smart good looks of the Maytag Washer continue to make it one of today's most wanted appliances.

For seventeen years the Maytag Company, like so many of today's topflight appliance manufacturers, has depended on the durable Du Pont DULUX Enamel finish to meet their exacting requirements. They know that DULUX offers important cost-cutting, sales-winning advantages . . . uniform quality, lower application costs and superb resistance to chipping, cracking, scratching and staining.

DULUX keeps its flawless appearance after years of constant use in the home. Its easy cleanability, resistance to wear and long-lasting whiteness help build the continued customer satisfaction so vital to the success of any appliance line.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Div., Wilmington 98, Del.

COMPLETE *Finishing* SYSTEMS

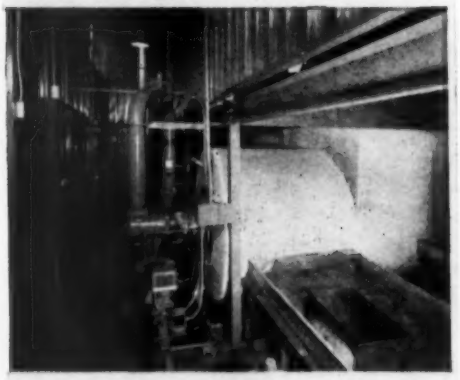
. . . for ENAMELS • LACQUER • PAINT • VARNISH

STRAIGHT-LINE PRODUCTION ON THE ROOF

. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

Above is the 700-Foot Long Self-Housed Finishing System Planned, Engineered and Built by Mahon on the Roof of the Whirlpool-Seeger Corporation's Marion Division Plant, Marion, Ohio. Much of the housing in this installation is an integral part of the Finishing Equipment.

Mahon Seven-Stage Metal Cleaning and Rust Proofing Machine installed in the Self-Housed Mahon Finishing System illustrated above. Ample space is provided for attendant on operating side.



Mahon Oven Control Cabinet, which houses Temperature Recorder, Air Flow Switches and other Safety Control Devices, is shown at left. Mahon Oven Heating Unit appears in foreground.

Pinched for Space Inside? . . . there's LOTS of SPACE ON THE ROOF!

Here's a typical example of straight-line finishing production unfettered by restrictions normally encountered inside manufacturing plants. This Finishing System was planned, engineered and built by Mahon on the roof of the Whirlpool-Seegar Corporation's Marion Division Plant, Marion, Ohio . . . it was built on the roof because suitable space inside the plant was not available. In the 700-foot long enclosure, which is permanent construction, are housed a Seven-Stage Metal Cleaning and Rust Proofing Machine, a Dry-Off Oven, a Cooling Tunnel, a Flow-Coater and Vapor Conditioning Chamber, Reinforcing Booth and Filtered Air Supply System. The Finish Baking Oven, which was already in place, was rebuilt by Mahon with three new Heating Systems. This is a Mahon solution of a problem confronting one manufacturer. If you have a finishing problem, or are contemplating new finishing equipment—for either Electrostatic Coating, Spray Painting, Flow-Coating or Dip-Coating—you, too, will find that Mahon engineers are better qualified to advise you on both methods and equipment requirements. No matter what your finishing job may be, you'll find that Mahon equipment will serve you better . . . because, Mahon equipment is engineered better and built better for more economical operation over a longer period of time. You can rely on Mahon to do the complete job on one contract—undivided responsibility for the entire system insures proper coordination, and safeguards you against complications which may upset your production schedules. See Mahon's Insert in Sweet's Plant Engineering File, for information, or write for Catalog A-656.

THE R. C. MAHON COMPANY • Detroit 34, Michigan

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Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning, Pickling and Rust Proofing Equipment, Hydro-Filter Spray Booths, Dip and Flow Coaters, Filtered Air Supply Systems, Drying and Baking Ovens, Cooling Tunnels, Heat Treating and Quenching Equipment for Aluminum and Magnesium, and other Units of Special Production Equipment.

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"PERFORMANCE TESTED" FRITS

You can be sure of dependable performance . . . stability over a wide firing range . . . uniform production, minimum reoperation . . . when you use O. Hommel frits. Each lot of frit produced by the O. Hommel Company is pilot-plant-tested under actual use conditions before being cleared for shipping. And this *performance testing* means *proven performance* for uniform, trouble-free production for you.

Why don't you try OHCO frits and see for yourself? Your O. Hommel representative will be glad to arrange a demonstration. Ask him, or write to . . .

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12½-minute baking cycle overhead speeds production below

Far-sighted planning by The Wright Line, Inc., prevented costly production line bottlenecks in their new one-story plant in Worcester, Mass. By suspending compact Fostoria Radiant Ovens ceiling-high . . . drying the "fine-wrinkle" finish on their metal card-handling cabinets is accomplished in 12½ minutes through controlled 365° F. radiant heat—and without interrupting the continuous flow of products at floor level!

Painted units are conveyed from spray booths upwards through 5′ x 6′ tunnel openings in their two 28½-foot Fostoria infrared ovens, for a fast, uniform baking-out operation. Valuable floor space is saved, production moves smoothly, and a better finish is assured at lower cost through efficient Fostoria radiant heat.

Consulting your Fostoria sales engineer can bring out some important cost-saving solutions to your finishing problems . . . heating, degreasing, baking, drying. He'll give you the facts on Fostoria radiant equipment — infrared lamp, quartz lamp or radiant rod—that will do the most work for you at lowest cost.

Write for free 20-page book, "Radiant Heat—applications unlimited"

INFRA-RED fostoria SYSTEM

FOSTORIA PRESSED STEEL CORPORATION • Dept. 820, Fostoria, Ohio

Pioneer manufacturer of radiant equipment—components and complete ovens

Hook 'em on Inconel for in-furnace safety

Notice these little 3/16 inch diameter "S" hooks?

The plant superintendent of California Metal Enameling Company (Cameo) reports they last four times as long when made of Inconel* nickel-chromium alloy. That's in Cameo's continuous furnace, 1500°–1600°F.

Big thing, though, is not Cameo's saving in burning hook expense. It's their saving in spoiled ware and lost furnace time. With these lightweight Inconel alloy hooks, droppage of ware and pile-ups in the furnace prove rare. The hooks don't shed scale either.

Inconel provides two-fold protection

1. **It retains its strength under sustained high temperatures.**
2. **It resists corrosive attack and scaling by furnace atmospheres.**

For conditions like these, specify Inconel alloy burning tools and fixtures. Your fabricator can form them readily in wanted shapes. Inconel alloy welds well, too.

*Registered Trademark

More information? Write today for "Keeping Costs Down When Temperatures Go Up." This Inco booklet contains many practical suggestions on extending equipment life.

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.

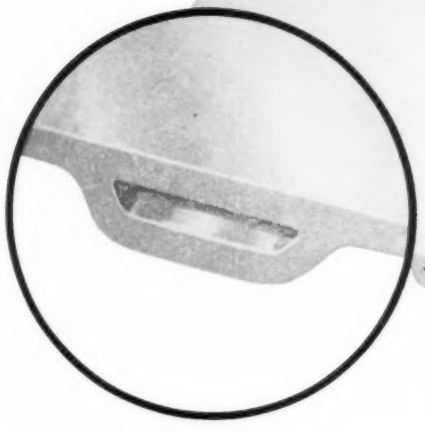
Inconel... *for long life at high temperatures*

The Refrigeration Industry

Reynolds

REYNOLDS

Check the Revolutionary Advantages of this Exciting New Development!



BETTER PERFORMANCE—MORE CONSUMER SELLING FEATURES

- Flat surfaces in evaporators permit direct contact with food packages, ice cube trays and other items providing heat transfer by conduction and completely eliminating any insulating air spaces. This aid to faster freezing also means a bigger consumer selling point for refrigerator and freezer manufacturers.
- Flat surfaces make it easier to defrost . . . improve drainage of water and other liquids . . . permit faster, easier, more thorough cleaning. More sales features!
- Flat surfaces permit small jars, bottles, cans and other containers to rest on smooth surface without wobbling or tipping, thus reducing possibility of spillage . . . still another good sales point.
- Flat surfaces mean no high points to concentrate wear on critical tube surfaces.
- Tubing right in the sheet routes refrigerant exactly where needed—no loss in conductivity. Tubed Sheet *One-Side-Flat* (two sheets of aluminum metallurgically bonded together so that the heat transfer passageways are in the sheet) is flat on one side and has the built-in tubing pattern on the other side.

NEW FLEXIBILITY OF DESIGN

- Reynolds new Tubed Sheet *One-Side-Flat* is the only sheet with one flat side providing integral tubing in any parallel or non-parallel patterns no matter how complex!
- Almost any tubing pattern that can be drawn on paper can be quickly and economically produced in Tubed Sheet with practically unlimited circuiting possibilities.
- Passageways can be flat or oval; large or small; spaced close together or apart.
- Redesigns are simplified, can be made quicker.

GREATER ECONOMY

- Eliminates metal used for evaporator tubing, accumulators and receivers.
- Many connecting and assembly operations are eliminated.
- Additional tubing lengths add nothing to cost.
- Redesigning costs are much less.

MORE ATTRACTIVE PRODUCT

- Can be embossed in a decorative pattern or left smooth.
- Can be color anodized in any color desired to match color-styled refrigerator and freezer interiors.

Demanded It!
Invented It!

ALUMINUM TUBED SHEET One-Side-Flat

(Patent Pending)

Tubed Sheet *One-Side-Flat* refrigerator evaporator
Note pattern on one side, other side smooth

For full details on Reynolds Aluminum Tubed Sheet *One-Side-Flat*, contact your nearest Reynolds Office or write *Reynolds Aluminum Fabricating Service, 2058 South Ninth Street, Louisville 1, Kentucky.*

The Finest Products Made with Aluminum are made with REYNOLDS ALUMINUM

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1. A difficult vari-angled stamping. Part of Aircraft Gas Tank.
2. Aluminum Drip Pan for Vending Machine. Made in 1 draw.
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Adaptable *to your finishing operation*

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GLOGARD ENAMELS

TYPE: Alkyd-Amino Resin

COLOR: White and tints

APPLICATION: Spray (reduce 5 parts enamel with 1 part SC #2 or Exlol)

BAKE: 10 to 30 min. at 300° or 5 to 15 min. at 325° (varies with formula)

GLOSS: Good

HIDING: Solid in one coat on steel

HARDNESS: HB to H pencil depending on formula

ADHESION: Good

COLOR RETENTION: Good

USES: Cabinets, water heater jackets, metal furniture and table. Also ideal for stools, containers, and other metal specialties wherever you require a high quality **competitive** finish.

The Better the Finish, the Better the Buy

GRAND RAPIDS VARNISH CORPORATION®

MAKERS OF THE FAMOUS Guardsman® FINISH AND Guardsman® CLEANING POLISH

GRAND RAPIDS, MICHIGAN

Dixie one of the first to use PERMA-VIEW WINDOWS

RECTANGULAR

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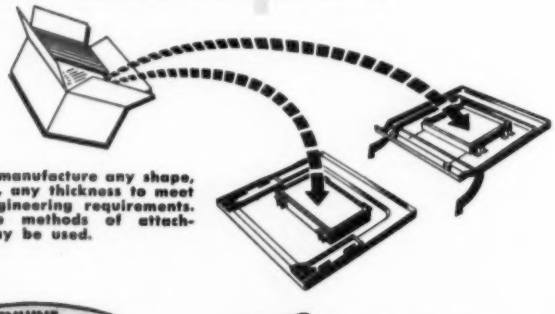

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PERMA-VIEW

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The strong steel encased, double pane PERMA-VIEW window incorporates the finest quality heat resisting glass. It is mechanically sealed to prevent infiltration of vapors and to eliminate "fogging." This "No-Fog" window meets the constantly growing demand for "visible baking."

The PERMA-VIEW window is pre-engineered, and comes to you ready for immediate installation in your range — "out of our carton into your door." Let our specialized production lines serve as a part of your sub-assembly facilities. Phone or write us for complete details on the ease and economy of adding this sales feature to your new ranges.

"out of our carton — into your door"

GENUINE PERMA-VIEW NON-FOG

MILLS PRODUCTS INCORPORATED

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Expansion for new markets planned at first PEI Aluminum Division meet

metal tile manufacturer heads new division which is out to get a big slice of the architectural porcelain business. Opportunities in other fields studied.

IN a two-day meeting held June 26 and 27 at the Cleveland Hotel, Cleveland, Ohio, a representative group of manufacturers got down to the business of organizing for increased sales and production of porcelain enameled aluminum. Those in attendance included producers of frit for aluminum, aluminum and aluminized steel producers, enameling companies actually producing porcelain enamel on aluminum, and basic suppliers to the porcelain enamel on aluminum industry. Any one who attended this two-day meeting could attest that this group is dead set on organization for results.

On Tuesday morning, separate subcommittee meetings were held by the following committees: Quality Development — chairman: E. E. Bryant, Ferro Corp., Processing Methods—chairman: R. V. Vandenberg, Aluminum Company of America, Cost Analysis — chairman: George Perkins, Reynolds Metals Co., Commercial Research — chairman: J. R. Young, Kaiser Aluminum & Chemical Sales, Inc.

Chairman Bryant reported the publication of a booklet, "Recommended Test Methods for Evaluation and Control of Quality of Porcelain Enamel Upon Aluminum," a tentative standard just issued by the Porcelain Enamel Institute as Bulletin AL-1a.

Chairman Vandenberg announced a booklet, (AL-2a) "Recommended Processing Methods for Porcelain Enamel on Aluminum Alloys," which includes design and fabrication information (joining, brazing, riveting, etc.), metal preparation data and information on enamel preparation such as receiving, storing, grinding, slip control, etc. The Processing Methods Committee expects that, within the next six months, it will have evaluated all available enamel pre-treatments.

B. C. Bricker of DuPont, acting chairman for the Cost Analysis Committee, reported that this Committee is attempting to set up costs on each step in the cleaning and enameling operation. Bricker reported findings indicating that a very small plant capable of producing about 200 square feet per hour can be set up for as little as $20,000 exclusive of building. It is expected that it will be possible to judge the costs for plants of varying sizes and for all processing operations when the committee's work is completed.

SCRUTINIZING SAMPLES of porcelain enamel on aluminum and aluminum coated steel are (l to r) B. C. Bricker of du Pont de Nemours & Co., who was elected vice chairman of the Aluminum Division at the meet; William Withey of Armco Steel Corp.; and Charles Jensen of the Vikon Tile Co., who was elected Aluminum Division chairman at the PEI meet.

Paul Mara of Kaiser, speaking for J. R. Young, reported that three meetings of the Commercial Research Committee have been held and that plans are underway for the development of statistics on production of porcelain enameled aluminum in the field of signs, building materials, appliances and sanitary ware. According to the early information developed by the committee, it is expected that there will be a 500 per cent increase in the use of porcelain enamel on aluminum in five years.

New officers elected

At the Tuesday afternoon session, following remarks by G. A. Hutt, Ferro Corporation, president of PEI, Charles Lohman, Pemco Corp., chairman of the Aluminum Division, brought the group up-to-date on progress. Lohman made it clear that one of the chief objectives of the Aluminum Division would be to insure adequate sources of supply as the demand is developed for the product. These sources, he believes, will come from (1) aluminum fabricators, (2) very large enamel job shops, (3) large product manufacturers who want to diversify.

Existing job shops, it is believed, are too small or are doing too well with present personnel and facilities to be interested in large scale expansion for this work.

It may be that subsidies from aluminum companies or, at least, strong promotion to one or more of the groups outlined will serve to get the new market off the ground.

It seems evident that the new development will not get to first base until someone with facilities, money and the urge to produce multi-story buildings is in the picture. As a matter of fact, there must be multiple sources so that competitive bids can be available.

One point that Lohman stressed in his report was the fact that price per square foot of fabricated product means very little in comparison with the price "in place" on buildings.

George S. Huber, Pemco Corp., served as chairman of an Organizational Committee which won the unanimous election of its candidates to head the new Aluminum Division. Chairman is Charles Jensen, Vikon Tile; vice chairman is B. C. Bricker, DuPont; and the financial director is John Leary of Alcoa.

The new officers, together with chairmen of working subcommittees, make

FINISHFOTOS OF SPEAKERS AND MEMBERS AT PEI ALUMINUM DIVISION MEET

ALUMINUM CONTINUED

up a policy group to guide the Division.

F. J. Close voiced Alcoa's enthusiasm for the comparatively new development and outlined how extensive research in new alloys, new processing, etc., is being carried out. Alcoa, he said, has no intention of doing enameling but is concerned with the development, promotion, sales and advertising help.

This speaker entered a plea for a high product standard; voiced the belief that the combination of the characteristics of porcelain enamel and aluminum could be sold on its merits. Color, he asserted, has as much to do with acceptance of a building as the design. Currently, 25 per cent of aluminum production goes into the building field, it was pointed out.

John Dinkeloo, a member of the firm of Eero Saarinen & Associates, and a project director of the General Motors Technical Center, voiced an architect's views on the potential of porcelain enamel on aluminum.

Said Dinkeloo, *the future of aluminum in the building industry is based on the future of porcelain enameled aluminum.*

A new era in building, he said, is forced by the economics of the times. Today's and tomorrow's architecture depends on the new manufactured products — we are no longer in an era of brick and stone. Nine out of ten architects, he said, want their buildings done in colors.

With porcelain enameled aluminum, shearing, punching and even welding have been done after enameling. Increasing strength and increasing fire resistance are other worth-while considerations. Laminated panels are needed for flatness. Strengthening his initial comment, Dinkeloo said, "I cannot think of one application on buildings for aluminum that we would not want to porcelain enamel."

The architect issued a warning in stating that the approach to this new material should be in a *positive* fashion. The approach to date, he said, has been negative. The biggest block to the use of the material so far has been the producers. (Ornamental aluminum manufacturers as a group don't know what to do about the new product.) In closing his remarks, the architect stated, "The biggest tool we have in

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It's time to take a new look at porcelain enameling!

FOR **REFRIGERATORS** AND **HOME FREEZERS!**

Automatic dipping and flow-coating equipment and new frits with smelted-in color are simplifying the porcelain enameling of food liners and storage pans, are raising quality standards while reducing costs. Ferro's Color Laboratory also is taking the guesswork out of color matching. These and other developments are narrowing the cost margin, making porcelain enamel ever more practical for refrigerator and home-freezer *cabinets*. Still other developments are on the way—one of which may add 20% to the capacity of your present porcelain enameling facilities.

CALL IN THE "FERRO TEAM" and let us tell you what is happening in porcelain enameling—in research, production, quality controls and automatic equipment. And we'll be happy to check your present production setup, tell you where you stand on costs. Remember: you get a *complete* service from Ferro. When and how can we serve you?

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WORLD'S ONLY COMPLETE PORCELAIN ENAMELING SERVICE . . . including Plant Layout . . . Furnace Design and Construction . . . Product Design Assistance . . . Enamel Selection . . . Color Matching Service . . . Plant Start-Up Supervision . . . Production Trouble-Shooting . . . Cost Analysis Field Studies . . . Porcelain Enameling Materials and Supplies.

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Alkali resisting

GROUND COAT

- **better than ever WORKABILITY**
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Not too many months ago Chicago Vit research set the pace with another "first"—a grey ground coat with high alkali resistance. Since that time there has been a growing desire and need for a **lighter grey** alkali resisting ground coat. Chicago Vit once again answers the need and announces this latest development for use on a wide variety of appliance parts. Here is a 1-fire finish that has outstanding workability, and covering power that lowers the boom on costs. And for added eye and sales appeal there are several companions to the grey **in colors** ! You'll be doing yourself a real injustice if you don't investigate this outstanding new development. Sales wise this may be just what you're looking for. Line up a demonstration today with your Chicago Vit representative or call us direct !

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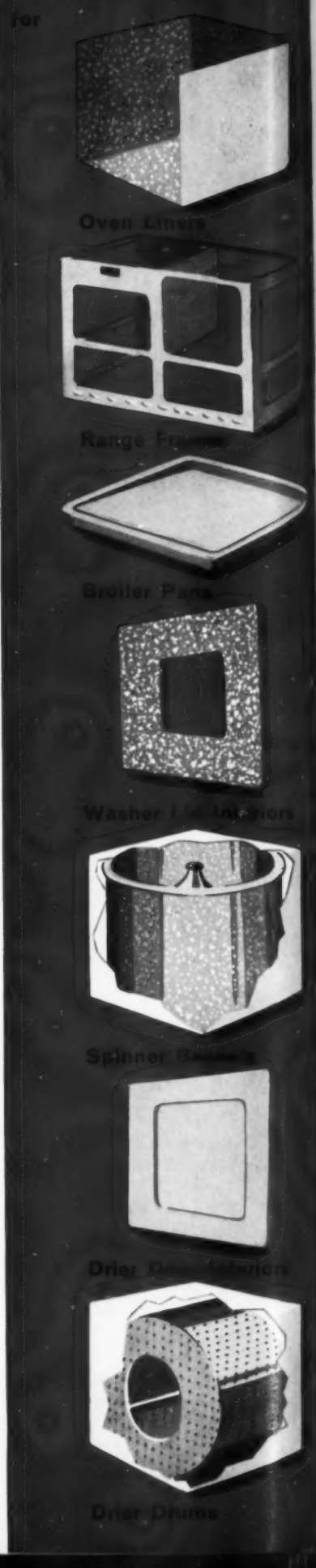

AHLMA summer meeting speakers cite "potential for new growth"

growth in population and markets yet untouched are cited. Sargent outlines Westinghouse position and viewpoint during recent strike

THREE hundred sixty-six members, wives and guests were present at the American Home Laundry Manufacturers' Association Summer Meeting, held at the Edgewater Beach Hotel, Chicago, June 14-16.

In addition to attending two business sessions and a luncheon at which industry speakers and some of the nation's foremost authorities in their particular professions spoke, Summer Meeting attendees breakfasted, visited, worked and played together in the most successful AHLMA Summer Meeting of all time.

Westinghouse strike studied

A highlight of the business side of the meeting was an address by R. J. Sargent, General manager, marketing and distribution, Consumer Products, Westinghouse Electric Corp., on the recent Westinghouse strike.

Sargent conceded that nobody wins a long strike in the sense of coming out money ahead, but said, "There are times when a money loss must be preferred over the loss of basic rights or abilities without which a company cannot operate effectively in a competitive market."

He went on to say that while Westinghouse lost orders during the strike, "I don't believe we lost customers."

Three major issues were involved in the strike, Sargent reported. These were (1) a five-year contract, (2) that the cost of this economic "package" would be about the same as the cost of the G. E. "package" in their settlement with the same union, and (3) the right to conduct time studies. Sargent said, "All three of the company's objectives during the long negotiations were attained."

Sargent summed up union gains from the strike in this way: "If our employees add up what they lost in wages during the five months of the strike, and then figure the slight gains they will receive that were not in our original offer, they will discover that it would take them, on the average, more than 50 years of steady work to recover their losses. In other words, very few of them will ever make up what they lost."

Speaking on internal trade association problems, Executive Director Guenther Baumgart noted that there are two goals which AHLMA has yet to reach. He said, "We must improve the techniques for being 'a good member'. The Association must have top policy-level executives of member companies serving in person in Association offices and on the Board. Most of AHLMA's members understand this. AHLMA is a good association because they do. AHLMA would be even stronger if all members did. Here is a challenge."

He also directed attention to a second major area for improvement. "We must determine policy for the general good of the industry," he said. "We must create in AHLMA new and increasingly better techniques for developing general Association policy on the basis of what is wise in the interest of the industry, especially for the long run.

"Some day soon we are going to have to face decisions which will be easier and wiser if we develop our philosophy and criteria now for evaluating what is good for AHLMA, for the home laundry manufacturing industry, even for the national interest."

"We have a good reputation for stating our cases well and effectively. Our industry is convincing when it speaks for these reasons. We have a great challenge to keep it that way as the industry develops in size and in complexity and in relative importance in the national economy."

AHLMA President B. J. Hank urged members to study their potential — rather than their growth — in making their plans for future marketing.

Earl W. Kintner, General Counsel, Federal Trade Commission, spoke on "Recent Trends in Trade Regulation". He told the group that the most recent development in deceptive practice work carried on by the Commission is a concerted effort to stamp out "bait" advertising.

Trends in trade regulations

He also cited several other trends and developments in the trade regulation field. The most significant of these, he said, was "a very positive movement toward a more realistic and at the same time a more energetic enforcement of our antitrust laws.

"Voluntary compliance with ethical advertising standards and with our antitrust laws should be encouraged by all industries in order to preserve competition", he concluded, "and, equally important, to preserve public confidence in competition and in the very excellent products resulting from such competition."

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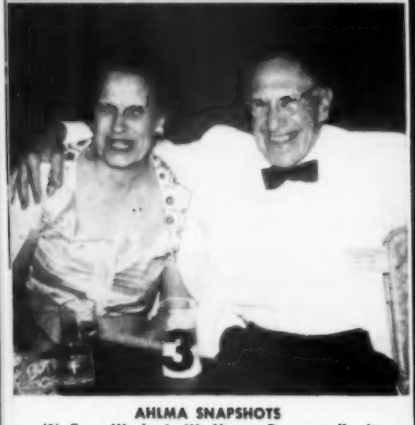
FOR PHOTOS OF EVENTS DURING THE CHICAGO SUMMER MEETING, PLEASE TURN PAGE



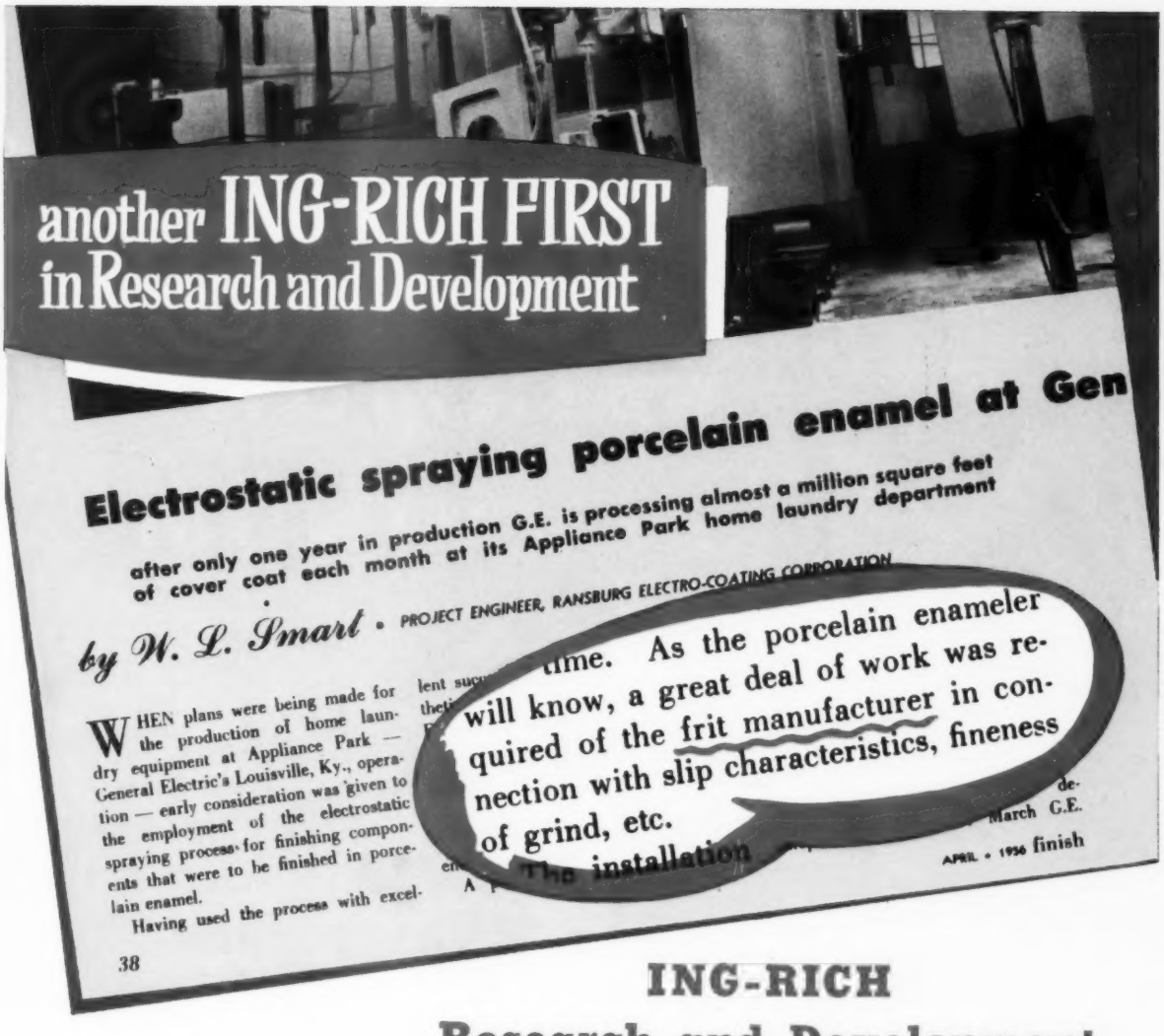
AHLMA SNAPSHOTS

(1) Easy Washer's W. Homer Reeves talks it over with Mrs. and Assn. Executive Director Guenther Baumgart. (2) A little fiddlin' was done — to the pleasure of all — by G. W. Burns, Easy Washer's General Sales Manager. (3) Bon Vivant David Mays was happily making friends and (4) Terry Craig was given honorary membership certificate from Ahlma President B. J. Hank and then further honored, by the associate members, with an engraved silver ice cup, an expression of appreciation presented by J. Dan Delanty, vice chairman of the Associates' Committee. (5) Enjoyable moment for Associate Committee Chairman Bob Buddington came when he talked and mugged with Fran Allison and Burr Tillstrom of "Kukla, Fran, and Ollie" fame. (6) Wining and dining were Mr. and Mrs. A. F. Boone and (7) (while Mrs. Howe, Mrs. R. O. Dehlendorf, Delco's J. Fred Howe, Mrs. and Mr. John Hughes of Delco searched for olives (or perhaps a lemon peel, twisted gently). (9) Humor hath a home as Ahlma's irrepressible General Counsel George Lamb, President Hank, Ray G. Halvorsen, Ahlma 2nd vice president and executive vp for Hamilton with Mrs. Halvorsen, enjoy themselves. (0) attentive was Joseph Groshans, Speed Queen Ironer Division GSM, and a lovely sight was Mrs. G. W. Burns, who smiled while her husband (see above) fiddled.

FINISHFOTOS

LOOKING FOR MORE

Monarch's W. D. Wilkensen has that look of "Where are the rest of all those photo's you took?" His answer is a highlight of the upcoming September issue with its focus on the home laundry manufacturing industry. There'll be more photos, a'plenty, in the September issue, just one feature of the special section that's loaded with information on everything from marketing to detergents analysis, data beamed to the home laundry industry but of pertinent interest to everyone in the field of appliance and other metal products manufacturing.


another ING-RICH FIRST
in Research and Development
Electrostatic spraying porcelain enamel at Gen
after only one year in production G.E. is processing almost a million square feet of cover coat each month at its Appliance Park home laundry department
by W. L. Smart • PROJECT ENGINEER, RANSBURG ELECTRO-COATING CORPORATION
WHEN plans were being made for the production of home laundry equipment at Appliance Park — General Electric's Louisville, Ky., operation — early consideration was given to the employment of the electrostatic spraying process for finishing components that were to be finished in porcelain enamel.
Having used the process with excel-
time. As the porcelain enameler will know, a great deal of work was required of the frit manufacturer in connection with slip characteristics, fineness of grind, etc.
38
APRIL • 1956 finish

as reported in April FINISH

ING-RICH
Research and Development

The same *know-how* that made possible the successful development of this greatly improved method is available to you.

ING-RICH, America's pioneer porcelain enameler, has been producing and using frit in daily enameling production since the earliest days of porcelain enameling on metal. Out of this long experience has come highly specialized knowledge that has brought countless improvements in porcelain finishing which have benefited the entire industry.

This know-how and our research facilities might be helpful to you in improving the quality of finishes, solving production difficulties, or applying porcelain enamel to new products at costs perhaps even lower than other finishes. Our full cooperation is yours for the asking.

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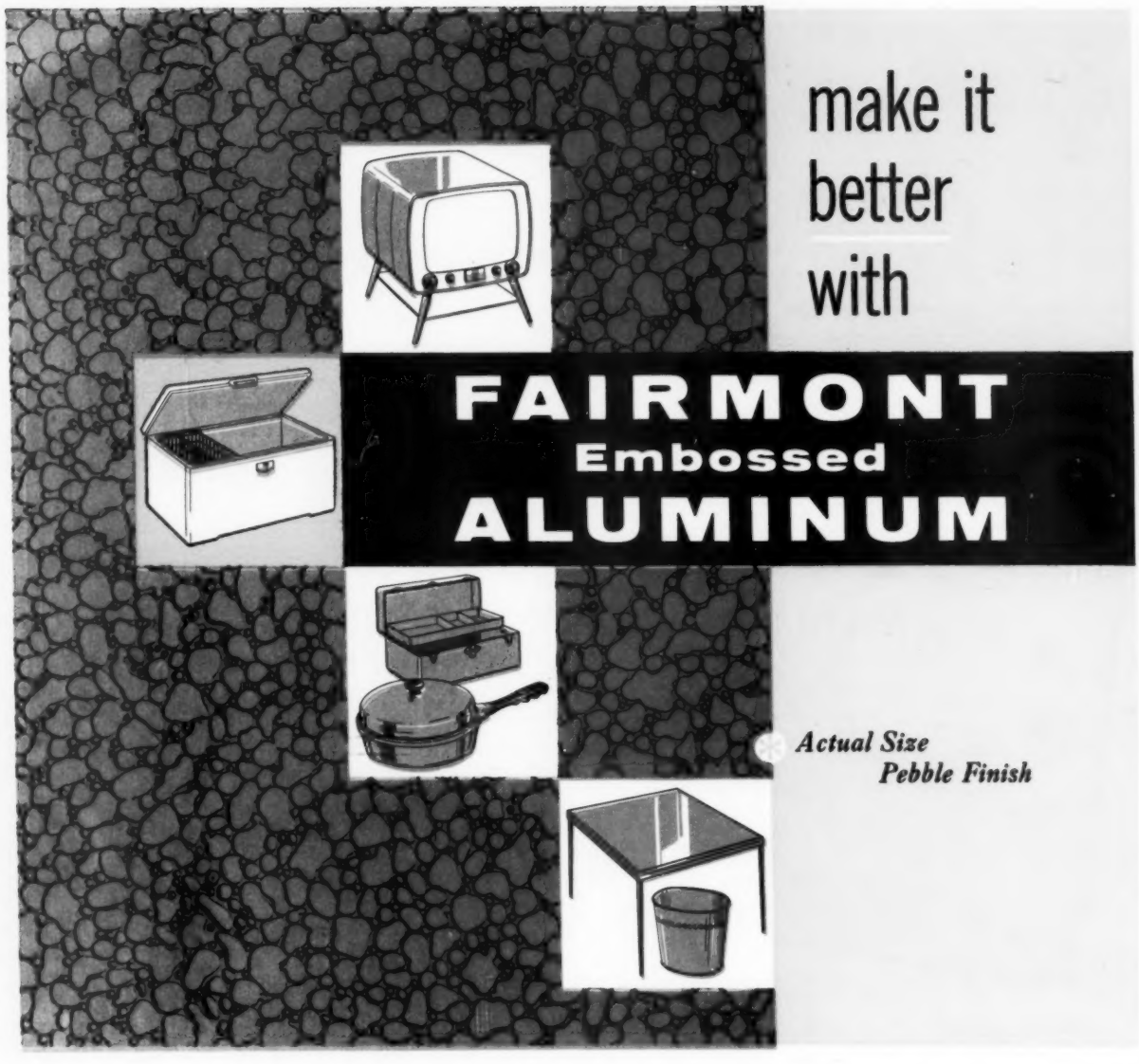
FRIT
"The Plant Tested Frit"

INGRAM-RICHARDSON, INC.

OFFICES, LABORATORY AND PLANT, FRANKFORT, INDIANA



This is one of several distinctive embossed patterns providing new eye-appeal, added rigidity and a permanent finish that constantly resists damage during fabrication in your plant, and for years to come in the hands of satisfied users. The finish is a part of the aluminum and can't wear off, crack or chip.

In applications for table tops, appliance parts and trim, fishing tackle boxes, and others too numerous to mention, Fairmont embossed pattern aluminum is receiving widest acclaim.

Other Fairmont 1100 and 3003 wrought aluminum sheets, coils and circles, recognized for highest quality and uniformity, are available for delivery to meet rigid manufacturing schedules.

Write today for the pamphlet—

"Fairmont Embossed Aluminum Finishes"

Sales offices in principal cities

FAIRMONT ALUMINUM COMPANY
FAIRMONT, WEST VIRGINIA

FALCO

25th national housewares exhibit has record 581 manufacturers showing

optimism keynote of Atlantic City show. 10,000 houseware items are displayed. Exhibitors show 1939 wares to give picture of progress.

WITH more and new colors, better design and less gadgetry evidenced throughout the displays, the biggest mid-year show in houseware's history came off with "wonderful success" at Atlantic City, July 9-13. A record breaking 581 manufacturers, displaying more than 100,000 houseware items (another show record), were on hand for the exhibit with 50 displaying for the first time.

"Atlantic City Housewares Week"

Atlantic City took full recognition of the event and Mayor Joseph Altman paid special tribute in opening ceremonies while announcing that he had proclaimed July 9-13 as "Housewares Week in Atlantic City." In the ceremonies, Chester M. McCreery, NHMA president and general manager of Revere Copper and Brass, Inc., accepted the scroll.

One of the highlights of the exhibit was a special display program, instigated by the National Housewares Manufacturers Assn., which called for manufacturers to schedule exhibits of 1939 housewares — the first year of the showings — along with their new lines, to dramatize the progress of the industry.

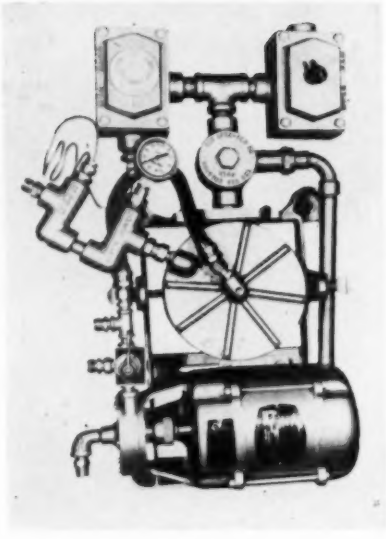
Multitude of new products

No editorial space could fill the requirements for showing all the products brought out during the show but several, shown in the montage above, should exemplify the displayed merchandise that greeted some 10,000 buyers and visitors as they passed through the exhibit areas. At far left, above, is the Knapp-Monarch's new liquidizer, offered in "connoisseur copper," chrome and three decorator colors, yellow, blue, pink as well as white. The unit's main feature is a unique sliding speed control, replacing the conventional two-speed operation. The Redi-Fry Griddle, upper right, was another exhibit and featured "greaseless cooking."

The Bissell people came in for attention with their chrome plated variable pitch sweeper, which was attractively gift packaged. The gift box, shown in lower center, even had a place for the handle, with four slender tapered chrome rails (fitting into the bottom of the box) that assembled to form the handle piece.

Improved coffee pots

"Ten cups of coffee in ten minutes" was featured for Westinghouse's new coffee maker. The unit, which combines a new pump assembly with a quick



DIAL TEMPERATURE FOR HOT SPRAY VISCOSITY CONTROL

Viscomatic attachment for hot spray heaters permits dialing any desired temperature in a 90° to 170° range by external control.

It was designed to meet the increased demand for rapid and easy temperature adjustment for the many materials which are best controlled at temperature levels below the hot spray range of 150°-170°, and for those installations using various materials which require rapid and precise temperature control.

Because variation in the hot spray range produces little or no viscosity change, most paint heaters are factory pre-set at approximately 160° (although usually adjustable by changing an internal thermostat).

At levels below 150°, however, variations in temperature produce marked changes in viscosity and, therefore, PRECISION temperature control at these levels is doubly important. This would apply, for example, to standard furniture lacquers at 125-140°; wrinkle finishes and heat sensitive varnishes at approximately 125°; or, hammertones, usually held at about 110° for best results.

The Viscomatic is explosion-proof and may be factory installed with the required hot spray heater.

For full information on the Viscomatic temperature controller and a free booklet entitled "Why Hot Spray?", write: The Spee-Flo Company, Dept. F-15, 720 Polk, Houston, Texas.

HOUSEWARES CONTINUED

action corox heater, permits the rapid completion of the brew. Plastic, growing by leaps and bounds in methods of use, as was well shown at the many exhibits, was used for the distinctive phenolic handle.

Cory Corp. showed a full range of their products from air conditioners to their new electric knife sharpener, safety engineered, see above, and introduced a new automatic 3-10 cup popularly priced percolator ($19.95) to go along with their vacuum automatic brewer and their famous "Crown Jewel" stainless steel and gold $50 unit, giving them a full line in this department.

Optimism is keynote

Those were only points of interest along a tour that was full of interesting stopping points. Housewares manufacturers, steeped in optimism, were marketing to take advantage of the excellent outlook for the remainder of the year. (See Norge President Sayre's comments, page 11.)

The general feeling was that business was good with an excellent growth opportunity, according to Association Secretary Dolph Zapfel. An industry sampling taken during the exhibition showed that 66% of the companies present had a better first half than in 1955 and 23% reported business the same as in '55; or a total of 89% of the 144 manufacturers reporting who answered that business was as good or better in the first half of 1956 than it was in the same 1955 period.

Expect improved Fall sales

Seventy-one per cent reported an expectation for improved business during the Fall season, with 23% reporting the expectancy of holding the line drawn in the Fall '55 period, which totals to 94% expecting business to hold or to show an increase during the last half of '56.

With 95% of the exhibitors reporting that their outlook, in general, for the next five years was optimistic, Assn. questions as to "why" brought the following results. Fifty said their outlook is based on current good economy and employment and they expect this to continue.

Thirty-eight credited the housewares industry's fast development of new products and improvements for the excellent current and future business. Twenty-seven listed first the booming birth rate and marriages as their reason. Seventeen said the upgrading of homemakers' thinking by newspaper, magazine, radio-TV publicity and more thorough merchandising had provided their optimistic views. And, of course, politics was given some credit, with seven pointing to the better business which should result from the post-election year stability.

Color importance growing

Most exhibitors cited new and more colors and the strongest trend for the future with more good design playing a good part in bringing greater saturation.

Homemakers want quality

To the question, "What do you think homemakers want most from the housewares industry from the standpoint of kinds of product, etc.?", 61 cited quality as the most important; 53 cited styling; 51—easy operation; 11—time saving; 10—fair prices; 5—cheap goods; 8—useful items; 8 — versatility; 8 — durability; 6 — color; 3 — space savers; 2 — newness; and 1 — safety.

Yellow wins color poll

In the "color predicting" department, the most frequently mentioned for the predominate color for 1957 were yellow, turquoise, pink, white, copper and red, in that order.

Prices will remain firm for 63% of the exhibitors, they reported; 32% will increase theirs, and 4% will decrease. The remaining 1% answered the question with "uncertain."

Raw material is not presently a problem, apparently, for the housewares manufacturers. One hundred and forty-three exhibitors said they had no raw material shortage problem; only 20 reported they had.

HOME LAUNDRY CONTINUED

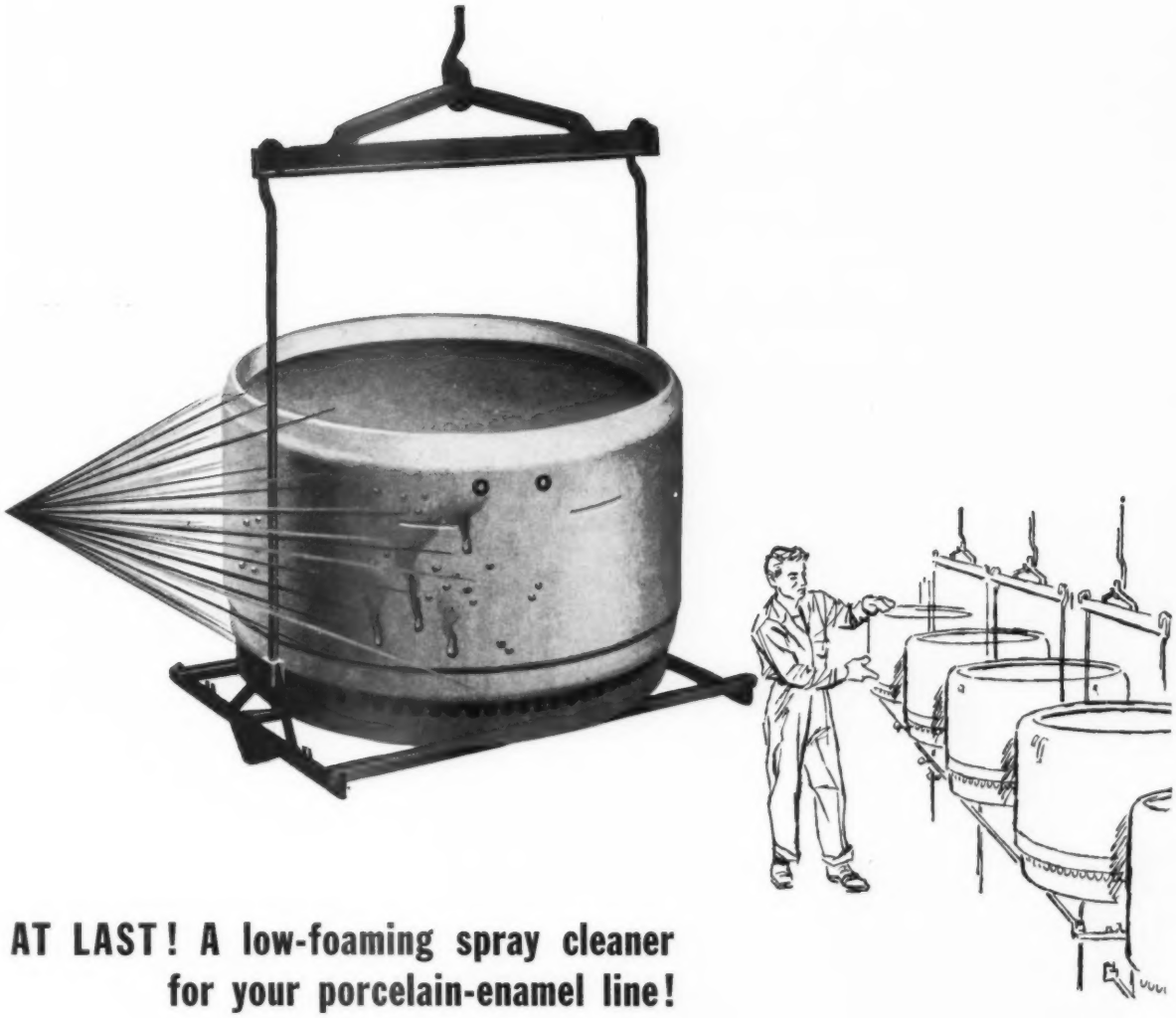
→ *from Page 11*

and dryer became just as important to the housewife as a television set is to the 10-year-old or a telephone to the teenager.

In sharp contrast, the sale of television sets has remained constant near the 7,000,000 mark annually for the past six years.

Home builders now realize that a washer and dryer is every bit as important to a prospective buyer as a refrigerator and a range.

Add consumer appliance demand to such rosy business indicators as a record of $44,000,000,000 in construction spending and daily retail sales of 4,000 automobiles and you obtain an optimistic picture for appliances during the rest of the year.



AT LAST! A low-foaming spray cleaner for your porcelain-enamel line!

PENNSALT CLEANER 38 eliminates emulsion-cleaner combinations

Here's a brand-new low-foaming spray detergent that *works!* With new Pennsalt Cleaner 38 you can get the benefit of today's wetting agents in your spray-cycle equipment on the porcelain-enamel line; yet you do away with foam problems and with costly emulsion-cleaner combinations.

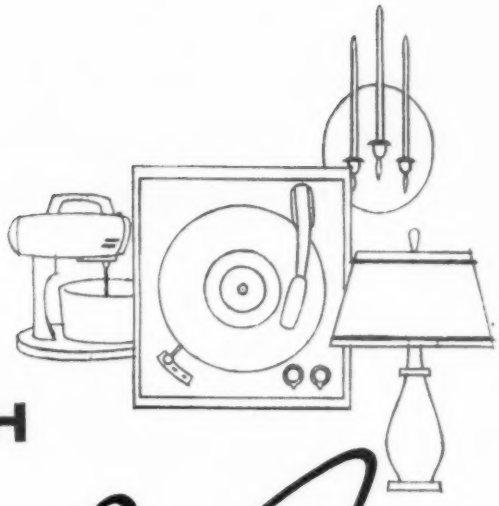
PENNSALT CLEANER 38 is completely *different* from other compounds. Without the foaming characteristic of other spray cleaners, 38 removes drawing lubricants and shop grimes never before thought movable. A delicate balance of wetting agents and high-alkali detergents in Cleaner 38 allows the use of this *one* low-cost spray cleaner . . . improves the quality of your work . . . actually cuts your costs lower than you may have hoped for.

WATCH 38 WORK in *your* porcelain-enameling line! Call your Pennsalt man to arrange a demonstration, or write Metal Processing Dept. 247, Pennsylvania Salt Manufacturing Company. East: Three Penn Center Plaza, Philadelphia 2, Pa.; West: 2020 Milvia St., Berkeley 4, Calif. In Canada: Pennsalt Chemicals of Canada, Hamilton, Ontario.

Pennsalt Chemicals

Metal Cleaners • Phosphate Coatings • Cold-Working Lubricants

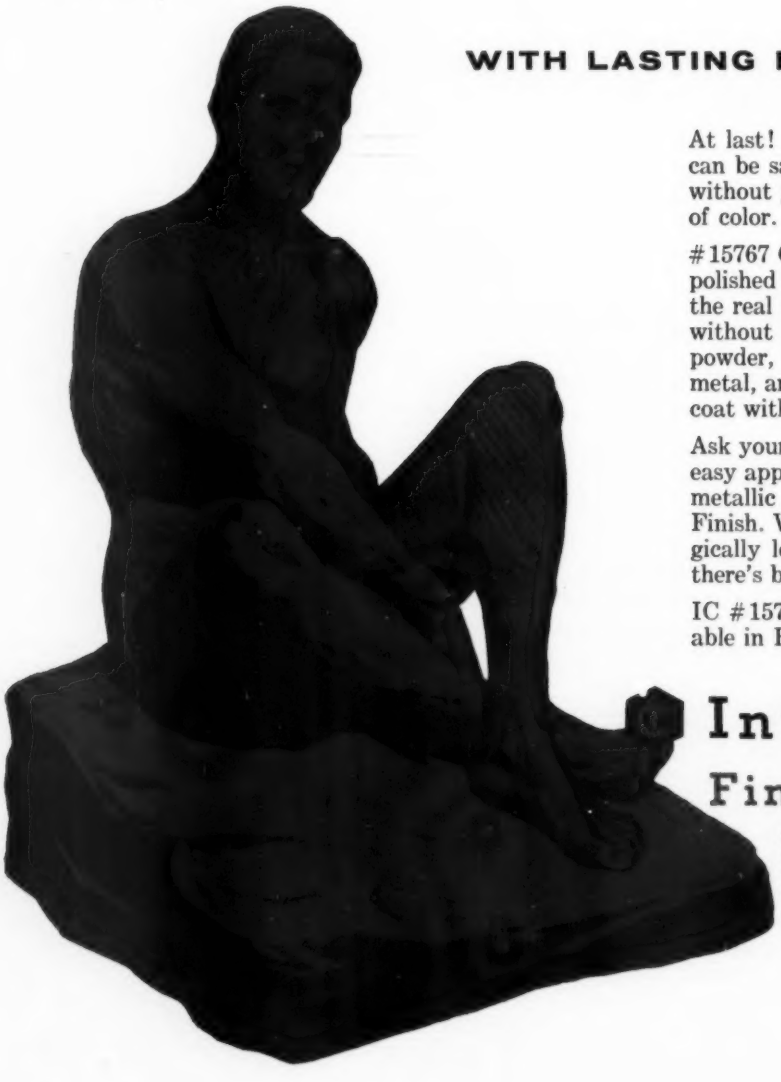
A BETTER START FOR YOUR FINISH



NOW! A READY-MIXED

BRONZE FINISH Comes of Age

WITH LASTING METALLIC BRILLIANCE



At last! A ready-mixed metallic finish that can be safely stored for at least six months without gassing, livering, settling or change of color.

#15767 Coppertone Finish gives a brilliant, polished metal finish that's hard to tell from the real thing. It can be air dried or baked without harmful oxidation of the metallic powder, exhibits excellent adhesion to bare metal, and will accept a clear protective top coat without loss of brilliance.

Ask your IC* Technical Specialist about the easy application, long shelf life, and realistic metallic finish of IC #15767 Coppertone Finish. With many plants and offices strategically located in this country and abroad, there's bound to be one near you.

IC #15767 Coppertone Finish is also available in Bronze, and various shades of Gold.

Interchemical
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Finishes Division

Factories: Chicago, Ill. • Cincinnati, O. • Elizabeth, N.J. • Los Angeles, Cal. • Newark, N.J. • Mexico City, Mex.

In Canada, these products are made by Aulcraft Paints, Ltd., Toronto, Ontario, under its trademarks

*IC is a trademark of Interchemical Corporation

THE Maytag STORY

Exclusive feature. finish

A Special Report by the Editors of Finish

A SUMMARY

The Maytag Company, while justifiably proud of its past laurels as a leader in the washing machine industry, finds even greater fascination in looking to the future. During the postwar decade, the Maytag team, along with the rest of the industry, has taken long strides forward in production, sales, and research — in fact in every aspect of the appliance business.

Maytag sales have more than tripled during the period, reaching a record $93,000,000 last year. This is in line with the trend of the industry. So far in 1956, we are moving at well above the $100,000,000 rate. New products and ever-broadening consumer acceptance have both required and made possible a continuing expansion program at Maytag.

In the past two years, for instance, we have spent more than $5,000,000 on such capital additions as a modern electroplating facility, linked with a complete chemical waste treatment plant, a large Central Service warehouse for all products and an addition to our porcelain enameling department doubling previous capacity. Some of these facilities are discussed in detail elsewhere in this magazine.

Our new dryer assembly line was placed in operation so recently it could not be included in this issue. A power and free monorail conveyor system, it is described by the installer as "the most modern and efficient assembly line in the world". When further additions to productive facilities now in progress are completed, our automatic washer and dryer plant will have six times the productive capacity it had when built in 1949. Along with this expansion we have introduced such new products as the All-Fabric automatic washer and No-Vent dryer, meaningful names which describe products that we feel measure up to our reputation for fine home laundry appliances. To merchandise these products we have built up an expanded and re-organized field organization. Perhaps our greatest growth has been in people, the lifeblood of any company.

Looking ahead, I am confident that we are equipping ourselves with products and programs appealing to dealers and consumers — tools with which to work effectively in the market place. Beyond all this, we here at Maytag are proud of one tremendous asset not listed on our balance sheet — the nearly 10 million housewives who already have purchased Maytag washers.

—Fred Maytag II

Firestone has developed engineering and production techniques during the past half century that definitely help solve design and specification problems. They also help provide manufacturing economies. Over the years, these techniques have come to be known as FIRESTONE TECHNI-SERVICE.

For more than thirty years, the Maytag Company has availed itself of FIRESTONE TECHNI-SERVICE in its purchase of:

Rubber and rubber-to-metal parts for dampening vibration and sealing applications for both automatic washers and dryers and wringer washers.

Wringer rolls for wringer washers.

Drain hose, air ducts, water controls and V-belts for both automatic washers and dryers and wringer washers.

For Maytag's new All-Fabric automatic washer and matching No-Vent dryer, illustrated above, Firestone furnishes molded rubber parts, water hose and air ducts.

Perhaps FIRESTONE TECHNI-SERVICE can help solve some of your design and specification problems. Firestone will welcome any investigation you care to make.

Write: Firestone Techni-Service

Firestone Industrial Products Company

Akron 17, Ohio

Verson tool-up at Maytag Plant No. 2 produces a variety of parts for Automatic Washers

Two Verson hydraulics and three Verson full eccentric presses, shown above at the Maytag Plant No. 2 in Newton, Iowa, perform deep drawing, punching, forming and trimming operations on a variety of parts for the Maytag Automatic Washer. These presses, designed and engineered by Verson, were tailored to Maytag requirements to be a part of the complete manufacturing program.

All Verson presses represent the ultimate in press design. But, more important, they are engineered, not only as presses, but as integral parts of your production process.

Take advantage of Verson's experience and facilities and put real production know-how to work for you. Send an outline of your requirements today. We will be happy to make specific recommendations.

A Verson Press for every job from 60 tons up.

TRADE Verson MARK

ORIGINATORS AND PIONEERS OF ALLSTEEL STAMPING PRESS CONSTRUCTION

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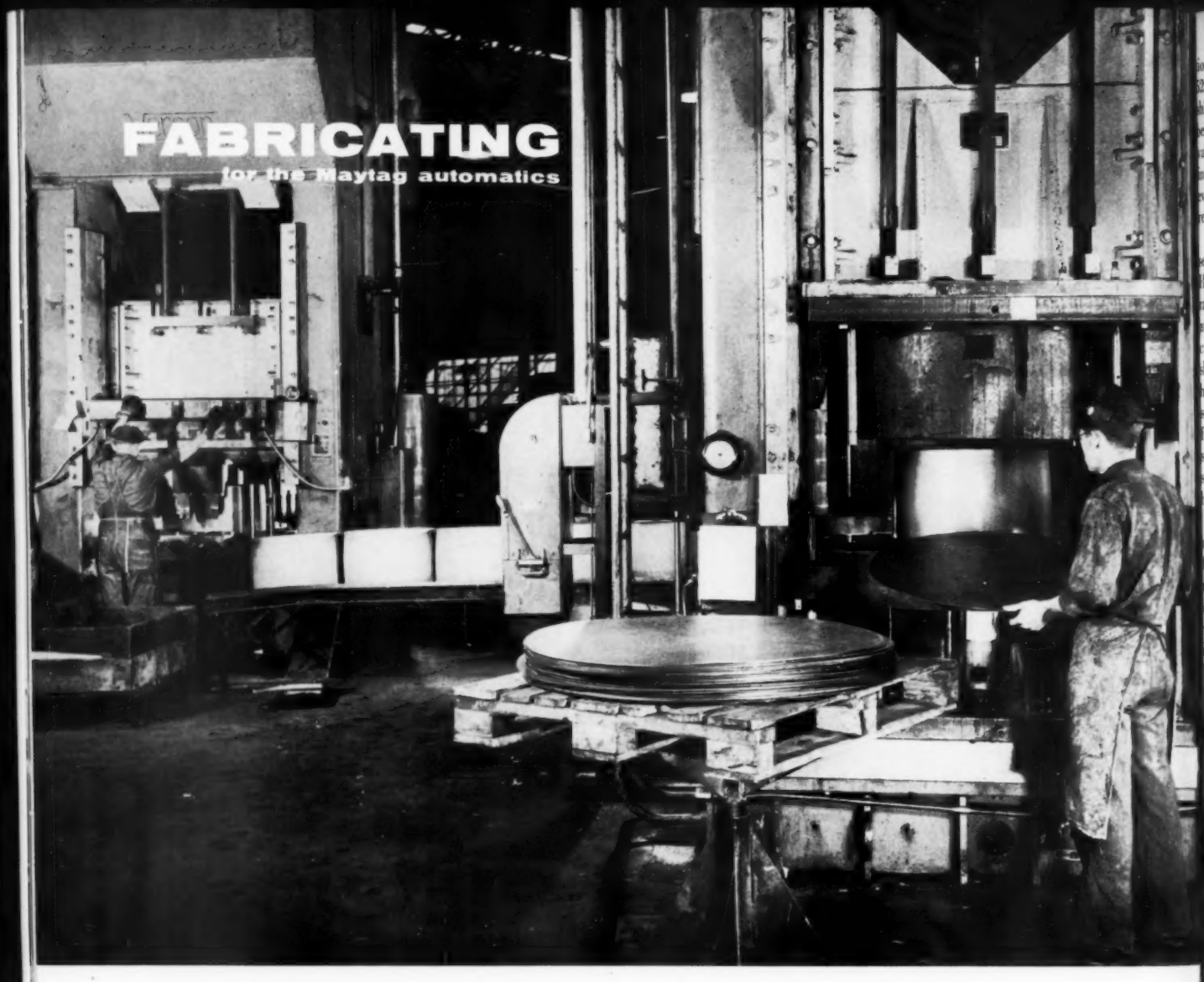
MECHANICAL AND HYDRAULIC PRESSES AND PRESS BRAKES • TRANSMAT PRESSES • TOOLING • DIE CUSHIONS • VERSON-WHEELON HYDRAULIC PRESSES



Processing 200 tons of metal daily

installation of four new presses now underway. Will raise count to six major lines with small presses bringing total to 90 presses

by Robert State • SUPERINTENDENT—SHEET METAL

Exclusive feature finish

FOUR NEW PRESSES—including the largest ever used at the Newton operation, a 400 ton double action hydraulic—now provide a total of six forming lines at Maytag's No. 2 plant. Ranging in size from 200 to 400 tons, the presses, many specially designed for the company's own requirements, process some 200 tons of metal daily through the department.

Add to those six lines, the great number of small presses that make up the small parts processing area, and there are a total of ninety presses now in use.

Operation programming for the section breaks down in this manner. The north line of presses is used for fabrication of top covers for the automatic dryer, as well as the dryer base frames. The south line is used for fabrication of the front panels for the advanced models of the dryer and automatic washer. Line Four, now nearing final installation, includes one 350 ton hydraulic, two 250 ton mechanicals and [illegible] 400 ton double action hydraulic, schedul[illegible] for use in tub manufacture. These thr[illegible] lines have 18 presses—ranging from 200 t[illegible] 400 tons each—which were installed pr[illegible] marily to facilitate the manufacture of t[illegible] new models.

The three other major press lines, [illegible] operation for about five years, are used f[illegible] fabrication of some of the basic parts f[illegible] the automatic washer and dryer, such [illegible] the tub basin, the inner and half tub, a[illegible] the dryer wrapper and cabinets. The s[illegible]

tion—largest in the plant—requires some 300 operating personnel, working three shifts, with the largest number of these being press operators. Dies, ranging in value from $400 to $40,000, and totaling in number approximately 550, point up even further the immense manufacturing responsibility of this department.

Inside facilities high-light the receiving section of the fabrication department. Here, receiving accommodations for 13 railroad cars and five trailer trucks are augmented by the 14,000 lb overhead crane, which is used to transport the flat sheet or coil to the storage area. Flat sheet, handled in strapped bundles is fit into the storage area with a maximum distance, from rail car to storage, of 30 feet. Full shearing facilities are available and are supplied material by means of the overhead crane, giving the crane a double duty.

Prior to fabrication, steel blanks to be drawn are processed through an automatic four stage cleaning machine. The initial stage of this process requires handling, individually, of each blank, onto a metal rack which holds up to 31 large 16 gage steel blanks, at capacity. The blanks are unloaded from pallets directly into the rack on a continuous conveyor.

Blanks soak in drawing compound

In the cleaning operation, the racks of metal are carried aloft on the conveyor and enter the first cleaning booth. The operation is a continuous series of individual operations. As each rack enters the first booth, the doors automatically close. In the first booth the parts are thoroughly sprayed with a soap compound cleaner.

After thorough surface covering, the booth doors open and the racks move on to the next stage. Here, too, the doors automaticaly close, making a booth, and a hot spray rinse is applied, using the force of the steam to assure complete coverage.

After a pre-determined period, the doors automatically open and the racks enters the third stage, where, after the doors close, the drawing compound tank rises automatically, enveloping the rack of blanks in the compound. After a pre-determined period, the tank automatically lowers, and the ware move into the final booth, a steam convection drying oven, where the parts are thoroughly dried before being returned to ground level and unloaded.

Example of series operations

While all fabrication is set up to take advantage of continuous series operations through the use of roller conveyors between presses and brakes in the line, a typical example should serve to exemplify the entire set-up. For example: the fabrication of the automatic washer.

For the exterior metal cabinet, the steel is purchased at approximate size, and requires only about ½" trim on the sides. This trim and blanking operation is accomplished on a 350 ton press which provides a blank measuring 76½" by 34⅝" inches. It is here also that the opening for the machine's back plate is blanked. The blank is then fed through the 190 ton brake where a flange and hem are formed.

The next step is through a tangent bender where the bank is formed into a three sided wrapper. From here, the part is processed through the first gun welder station where a U-shaped reinforcing brace, and corner braces are welded on simultaneously. The part then moves via gravity conveyor to the second gun welder set up where four brackets (for attachment of the front panel) are welded on.

Fabrication of tub basin

Two sections, the "tub upper" and "tub lower" combine to form the tub basin the Maytag automatic washer. In forming the "tub lower", four stages are in the line. The blank is first drawn on a 300 ton mechanical press, then further drawn to its 25" diameter size on a 300 ton double action hydraulic. To trim the part to overall dimensions, a 250 ton mechanical is used. The final blanking and finish forming is done on a 200 ton mechanical.

In forming the "tub upper", the blank is first drawn to 14" on a 350 ton hydraulic, then blanked and trimmed to the overall height on a 250 ton mechanical. The final operation forms the top radius accomplished on a 200 ton mechanical. The completed tub uppers and lowers are then stockpiled in a mezzanine storage area, where some 3,000 are stored, supplying the needs of the welding section as they are required.

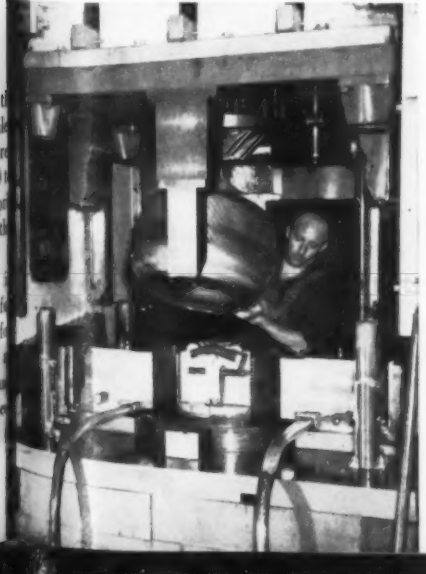
From storage, the tub parts are fed into the welding section. Here, in the first step, damper spring brackets, a nipple, reinforcing strap and four legs are welded to the tub lower. Then holes are pierced in the legs, which rest on the base frame. Parts are then set in a jig, mated and spot welded. Seam welding completes the unit, with the component parts being projection and spot welded to the tub assembly. The tubs are then subjected to water tests, and with the inspector's approval, are fed on to the porcelain enameling section. A solvent in the water prevents rust.

Circle blanks are drawn to a 7" depth in the first forming of the inner tub of the Maytag automatic washer. This is accomplished on a 300 ton double action hydraulic and the part is then processed through a 250 ton mechanical press for blanking, and trimming. The next step is creation of the 150 .135" holes in the bottom of the "tub lower". This is achieved with a special die set-up on a 200 ton mechanical, with the piercing done from the interior to assure an absolutely smooth inner surface.

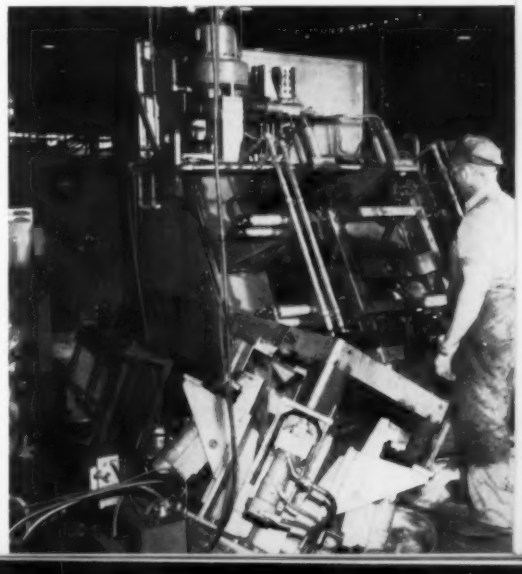
The inner "tub upper" is blanked and drawn 6½" from the square blank in a

to Page 77 →

Unique multiple die *set-up on a 250 ton mechanical creates holes in washer's tub.*



Huge welding section *provides equipment to keep up with heavy flow of work.*



ABOUT THE MAYTAG STORY

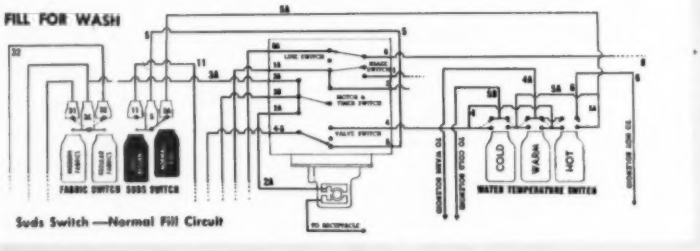
Space does not permit complete coverage of the Maytag operations — Plant 1, the Hampton Division, the engineering, and management, and purchasing teams. This report deals only with the facilities of Plant 2 — hoping that they will serve to show the thinking and the action that keeps going right on out in Newton, Iowa. We were not even able to keep up with Plant 2. The same day this issue went to press, a new monorail dryer assembly section went into operation. And work was underway on another assembly line for washers, due for operation in late fall. We can only salute the more than 4,000 employees who are now well on their way to producing the 10,000,000th Maytag. A lot of progress for a company that started with $2400, four good men, and a "first" — even then — in the market place, a band cutter and self feeder, for threshing machine.

Exclusive feature finish

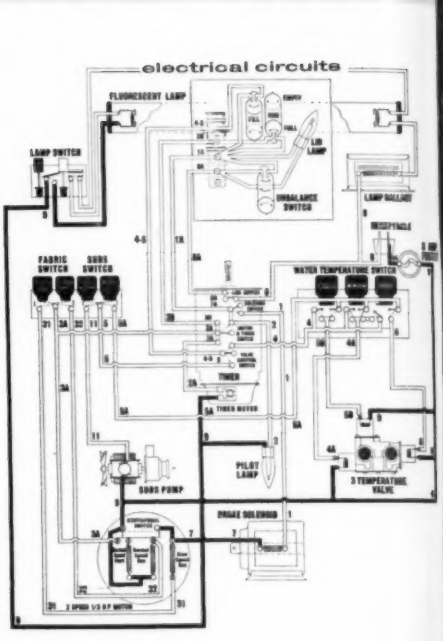
ENGINEERING

the Maytag automatics

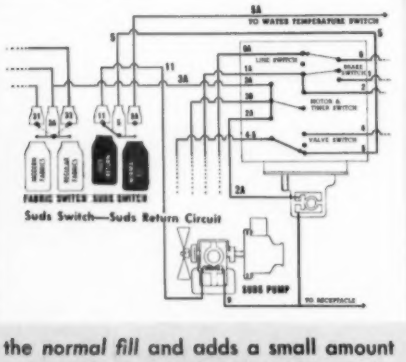
The pride of the Maytag line, their "All Fabric" automatic washer and its companion No-Vent Dryer, is reported on these pages. The details are clearly exposed in the accompanying photos and reports. These and the preceding and following reports, should serve to show that quality in product comes, at Maytag, not only from engineering but from each step in the manufacture, from fabrication to final assembly.



Suds Switch —Normal Fill Circuit

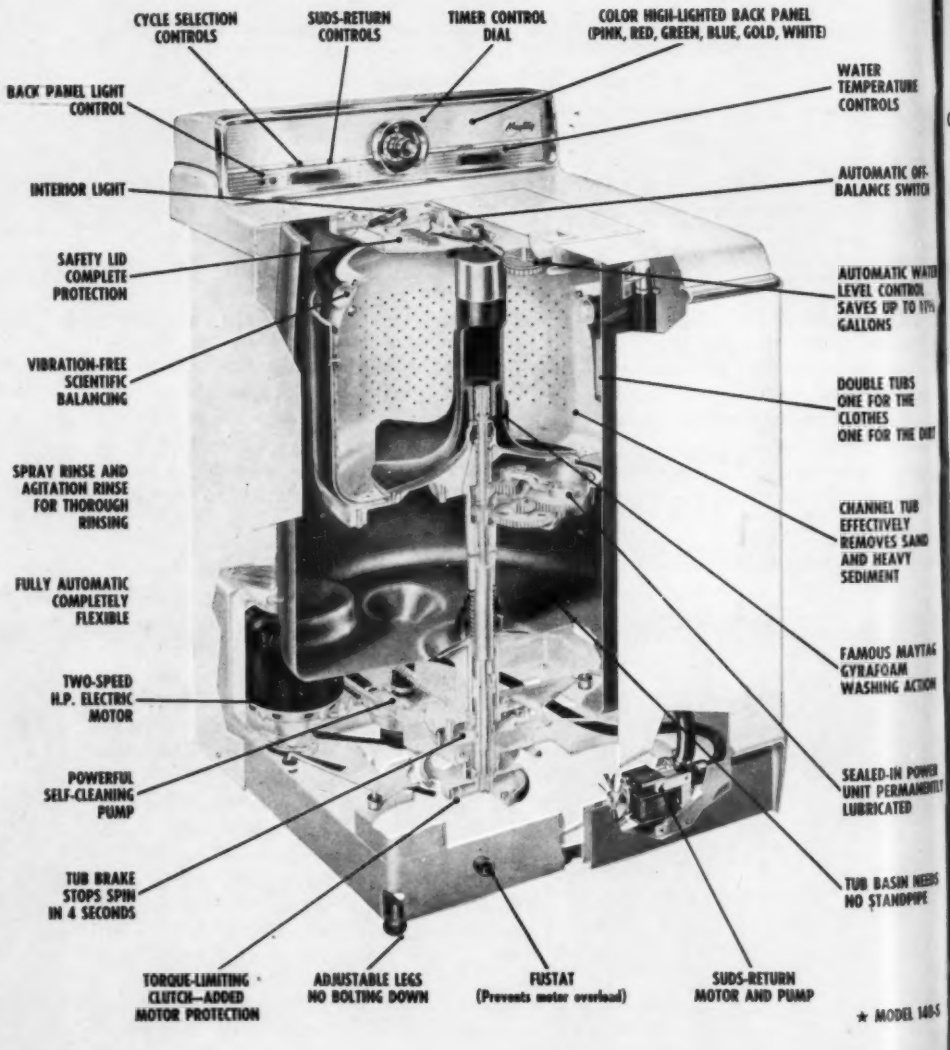


A major feature of Maytag's *All-Fabric* 140s is the two-cycle washing operation. *Regular fabric* wash speed is 54 opm with spin speed at 618 rpm. The *modern fabric* cycle has one third less or 36 oscillations for wash and 412 rpm for spin. The slow action was developed for fabrics that require "more gentle wash and spin drying", and not necessarily a shorter wash period (the familiar short wash cycle which is part of the 140 model). The *suds saver*, with the flow pattern shown in the diagram above and below is another feature. This permits automatic re-use of wash water with the drained off water held in an auxiliary tub until its return. An operator touches

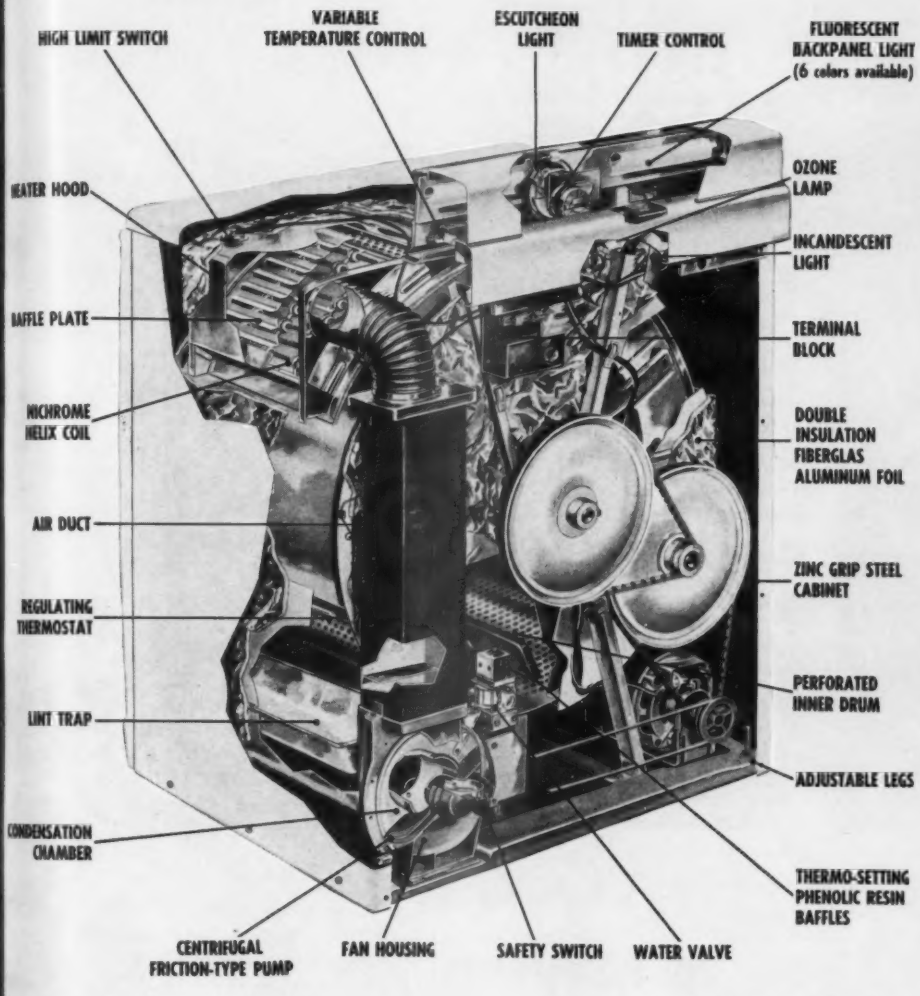


Suds Switch—Suds Return Circuit

the *normal fill* and adds a small amount of new detergent after the return cycle, to provide necessary makeup. The new safety lid and tub brake combine to halt the washer within 5 seconds after the lid is opened. In adition, a torque limiting clutch and an 8 amp fusetat for motor protection, are featured safety devices.

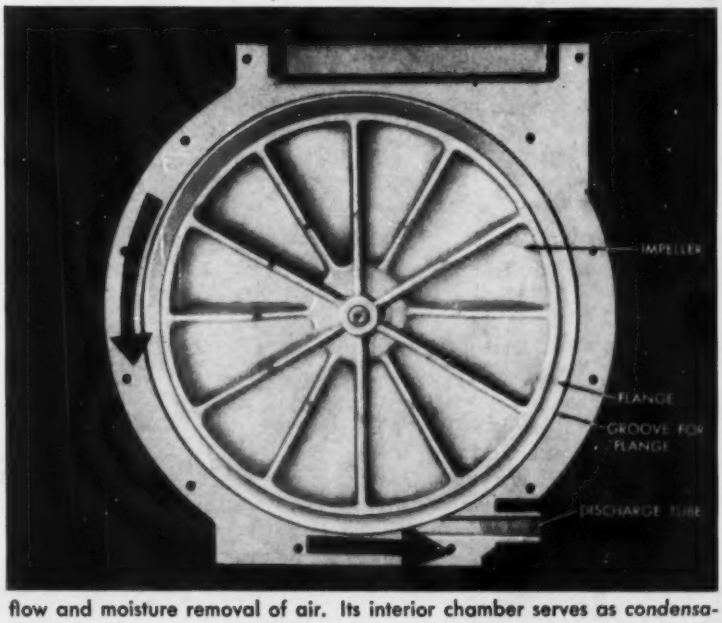

CYCLE SELECTION CONTROLS
SUDS-RETURN CONTROLS
TIMER CONTROL DIAL
COLOR HIGH-LIGHTED BACK PANEL (PINK, RED, GREEN, BLUE, GOLD, WHITE)
BACK PANEL LIGHT CONTROL
WATER TEMPERATURE CONTROLS
INTERIOR LIGHT
AUTOMATIC OFF-BALANCE SWITCH
SAFETY LID COMPLETE PROTECTION
AUTOMATIC WATER LEVEL CONTROL SAVES UP TO 17½ GALLONS
VIBRATION-FREE SCIENTIFIC BALANCING
DOUBLE TUBS ONE FOR THE CLOTHES ONE FOR THE DIRT
SPRAY RINSE AND AGITATION RINSE FOR THOROUGH RINSING
CHANNEL TUB EFFECTIVELY REMOVES SAND AND HEAVY SEDIMENT
FULLY AUTOMATIC COMPLETELY FLEXIBLE
FAMOUS MAYTAG GYRAFOAM WASHING ACTION
TWO-SPEED H.P. ELECTRIC MOTOR
SEALED-IN POWER UNIT PERMANENTLY LUBRICATED
POWERFUL SELF-CLEANING PUMP
TUB BASIN NEEDS NO STANDPIPE
TUB BRAKE STOPS SPIN IN 4 SECONDS
TORQUE-LIMITING CLUTCH—ADDED MOTOR PROTECTION
ADJUSTABLE LEGS NO BOLTING DOWN
FUSTAT (Prevents motor overload)
SUDS-RETURN MOTOR AND PUMP
★ MODEL 140-S

ELECTRICAL FLOW CHART FOR THE MAYTAG NO-VENT DRYER



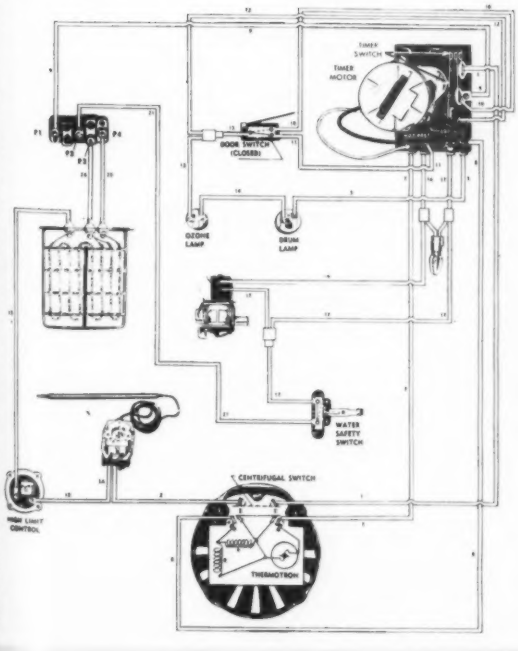
Designed so that it can fit homes wired for 115 or 230 volt operations, the *Maytag Supermatic No-Vent Dryer* has a number of outstanding features. From the chrome and coppertone control panel —the chrome must pass a test of 16 hours in a 25% specified detergent solution at 158° to be accepted—to the extraction chamber, detailed below, good engineering went into this product. Safety features include the hi-limit switch as protection against excessive heat build-up. It will operate at 250°. This is in addition to the thermostat which has a range from 145° at low to the high setting of 190°F. The water valve operates between 20 psi minimum and 120 psi maximum. A water safety switch, mounted directly under this valve, keeps the unit from operating if (1) no water pressure is recorded or (2), the unit overflows. Opening the dryer door stops all operation within 5 seconds, and an automatic resetting thermothon provides motor overload protection. The automatic timer control has 110 minutes available, allowing handling of the most difficult-to-dry items. The heating hood, divided into two sections by a baffled metal plate, directs an even flow of air over the heat element. The element begins to heat as the timer control is set for any time over five minutes, generally speaking. For safety, the 230 volt circuit to element is wired across the motor centrifugal switch by extra contact points. This contact cannot be completed until the motor reaches running speed.

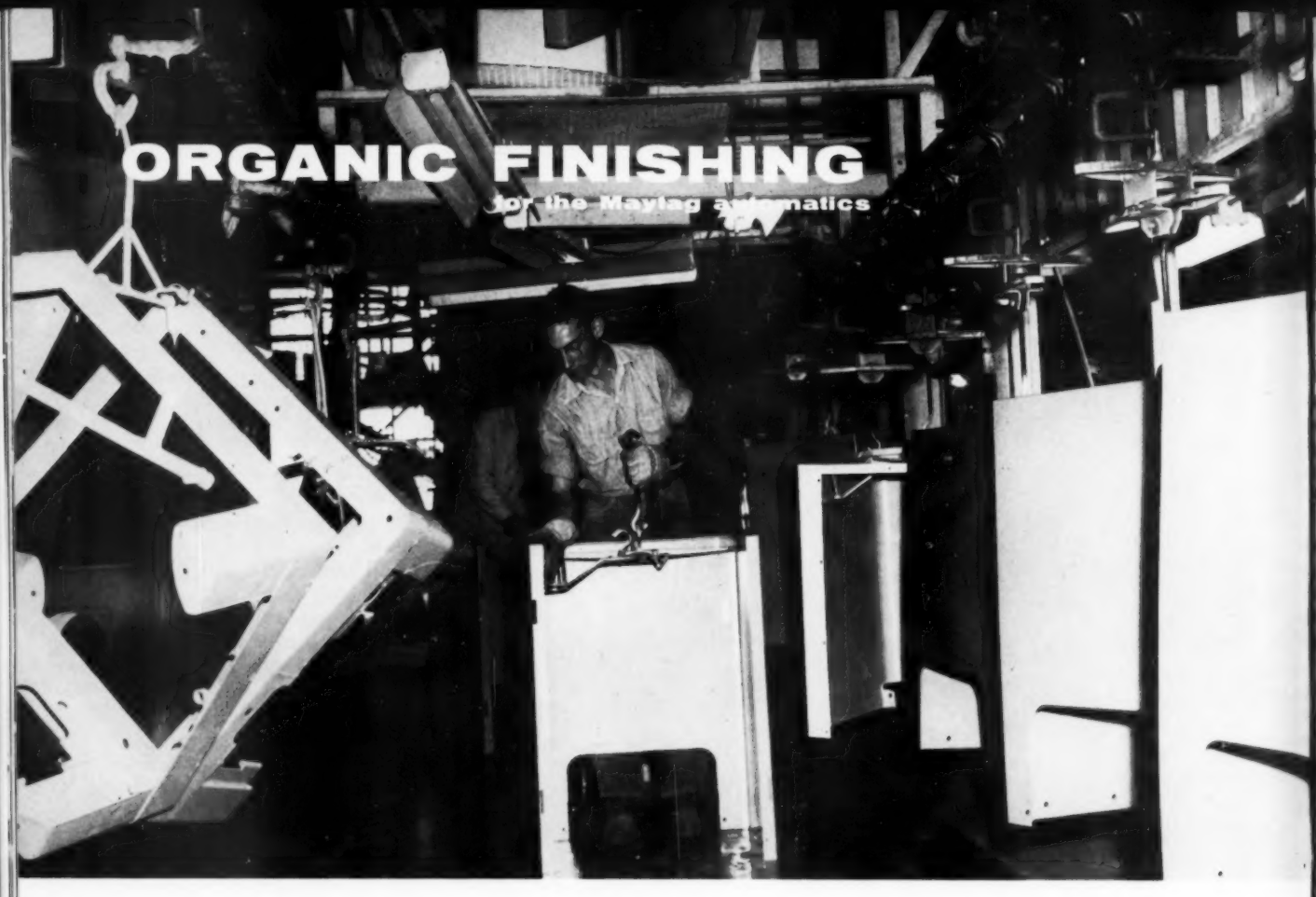
Heart of dryer is this extraction chamber. Of die cast aluminum, alodinized and interior coated with nupon, it performs four functions. As the *circulation blower*, it forces air up air duct and over heat element, increasing



flow and moisture removal of air. Its interior chamber serves as *condensation area* for water removal. The 2020 rpm impeller, completes *atomization* and the flange and groove form a centrifugal friction type *discharge pump*

ELECTRICAL FLOW CHART FOR THE MAYTAG NO-VENT DRYER





Painting a Rainbow at Maytag

electrostatic spraying, flow coating, improved sanding, are all part of operation that produces top quality products in white and color

by John Wert • SUPERINTENDENT—PAINT FINISHING, PLANT 2

Exclusive feature finish

With all the furor that now rages on the "new look" in home appliances and the question "Will color take the place of white?", you shouldn't be concerned that Maytag executives and the boys in the mixing room seem to have an air of nonchalance. After all, that "experienced look" comes from a long history of producing Maytags in a multitude of colors ranging from "apple green" to an array of grays.

In fact, from the time when the first varnish-finished wooden tub washer was produced, all Maytags were in color until fifteen years ago when—after long and ponderous study—management decided to try out "all white." But, until that period which was just prior to WWII, an array of two toned Maytags took their places in laundry rooms around the world, with the company marketing eight different colors at the same time.

Process 90 parts through paint

In either case, color or white, the paint department at Maytag's Plant 2 is now using more paint every week than it would take to cover a 14 acre area with prime coat and a four acre area with top coat. On the color side, they are now marketing their supermatic washer and dryer set in pastel tone green, pink and yellow. But the majority of the product is in white, and here is how they do it.

Approximately 90 different parts, some of formed sheet metal and some castin process through Paint Finish, Dept. In the preparation of the fabricated pa requiring paint finishes, a 200' lo straight-line cleaning and phosphatizi machine is used. This is located at t mezzanine level. Parts, earlier attached hangers on the monorail supply system, a first processed through a detergent ba maintained at 185°F with a 4370 gall solution tank supply. After a 42 secon spray, the parts are given a 24 second dra and pass to the next stage.

It should be noted that additional mak up is added each hour, with the amou added determined by an hourly chemic analysis. The parts are then process through a 2400 gallon tank where they a sprayed with an activated cleaner for

nds at 170° F which promotes fine th of the phosphate coating, then given arm water rinse for 24 seconds at 145° temperature of solution.

ults of metal treatment

Phosphatizing is accomplished by spray m a 4370 gallon tank where the solution maintained at a ratio of 1:13 free acid total acid with 26 points total acid by ation. After a 24 second drain, the parts processed through a room temperature ter rinse for 24 seconds from a 2400 llon tank. The 2400 gallon capacity romic acid tank is held at an optimum 0° F for the next stage where the bath maintained at 0.4 to 0.6 free acid with a al acid of 5.0 maximum. Parts are ayed at this stage for a 24 second peri- , then allowed to drain before continuing rough the 100 foot dry-off oven running rallel to the machine.

It might be well to reaffirm here that hile we use the term "cleaning" for this eration, the phosphatizing solutions and romic acid baths, do much more. The ction of these chemical process solutions presents a distinct concept of metal reparation which goes beyond mere clean- g of the surface. The system employed aves a deposit which makes the surface s reactive chemically to air and moisture d provides a "tooth" for the organic nish.

As the conveyor which carries the eaned parts leaves the dry-off oven, it ops to ground floor level and passes rough a blow off area where any pockets areas that received insufficient draining e dried properly.

itial paint applications

After this processing, the bulk of the arts are prime coated in a flow coat eration. From there they proceed to a ater spray wash booth for reinforcing, hich is done by manual spray. Viscosity the paint used in the flowcoating is held 17, using a No. 3 Ford cup, while that r reinforcing is held at 20 seconds. A w parts are prime coated by manual pray.

The next stage is processing through a 00' oven which gives a 40 minute prime oat bake at 385° F at the present chain eed. The conveyor then continues on to mezzanine inspection station traveling for me 4 minutes in free air for cooling and rdening, before the inspection. Here, fter being minutely inspected, the parts ontinue on the conveyor which returns to round level.

At this point all accepted parts are trans- erred to the finish coat conveyor system nd sent through a sanding tunnel. Hand nding is used for removal of any spots r runs. Tack rags are used for removal of all sanding dust. The parts are then conveyed through the three loop electrostatic disc equipment for top coat application. Paint used here has a viscosity of 18 for the No. 3 Ford cup. After the electrostatic application of top coat, the parts are routed through a water wash spray booth for inspection and hand spray reinforcement, as required. Paint for this operation has a viscosity of 26 for #3 Ford cup.

The area in which the parts receive their prime and top coat paint is well ventilated with 87,000 cubic feet of air being forced through the area every minute, providing a safe and healthy working atmosphere and as well as a dust free atmosphere. Following the final coat application, the parts are returned to the second floor level and sent through the finish coat oven, this time at 320° F for a 40 minute bake.

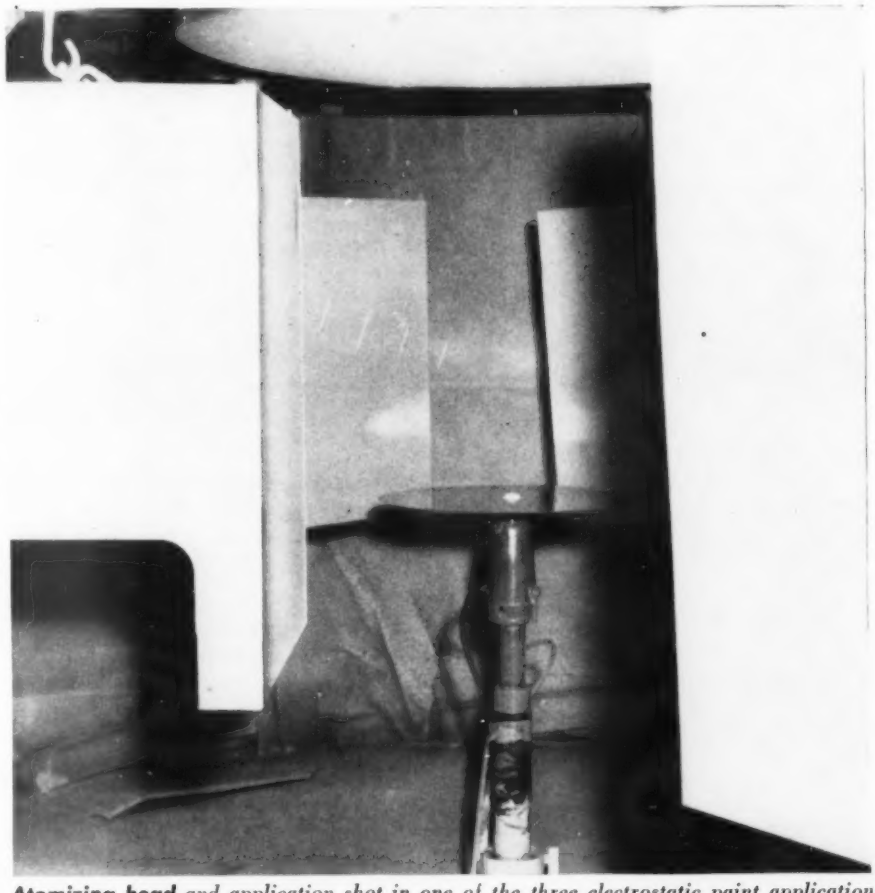
On-the-chain inspection

The baked ware then returns to the mezzanine inspection area where on-the-chain inspection is done in an area flooded with fluorescent light. The conveyor line then returns to ground level and at this point rejects are removed and returned through the sanding tunnel some 20 feet away. The inspected and approved parts are transferred to the finish goods delivery and storage conveyor. A few parts which receive only a prime coat go on to another storage and delivery conveyor upon leaving the prime coat oven and inspection station.
tag purchases its paint in drums in carload

Scheduling through the section is accomplished in such a manner as to provide for groups or "sets" of parts to arrive at assembly according to line requirements. This finished part assembly service conveyor line serves parts at the point of assembly and parts are picked off, as necessary, by the line assemblers. The service conveyor continues on, carrying parts not immediately needed.

Extensive mixing room set-up

Space does not allow the description necessary to tell of Maytag's extensive paint preparation facilities. It is well worth pointing out, however, that Maytag purchases its paint in drums in carload lots. These drums are stored on off-the-floor racks, three drums high, providing constant supply. Nine mixing tanks—three for prime coat, three for white top coat, and one each for the three colors—are used in the mixing set-up with the paint flow from mixing tank to application, accomplished by a pump operation recirculating system.



***Atomizing head** and application shot in one of the three electrostatic paint application booths now in operation in the greatly expanded paint department at Maytag's Plant 2.*

Ferro Engineering helps Maytag

cut costs,

improve quality

Revolutionary new equipment, used in expanding existing facilities, gives the Maytag Company what they asked for—"Today's finest, most modern Porcelain enameling plant". This includes a second large Ferro furnace, doubling the previous capacity.

Photo A

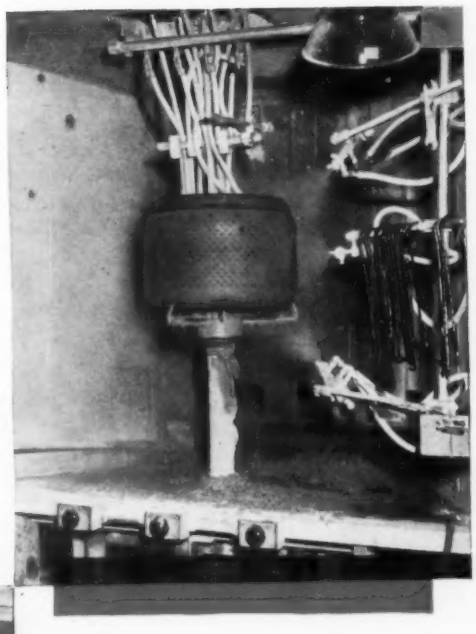
Better preparation of metal solves major cause of rejects

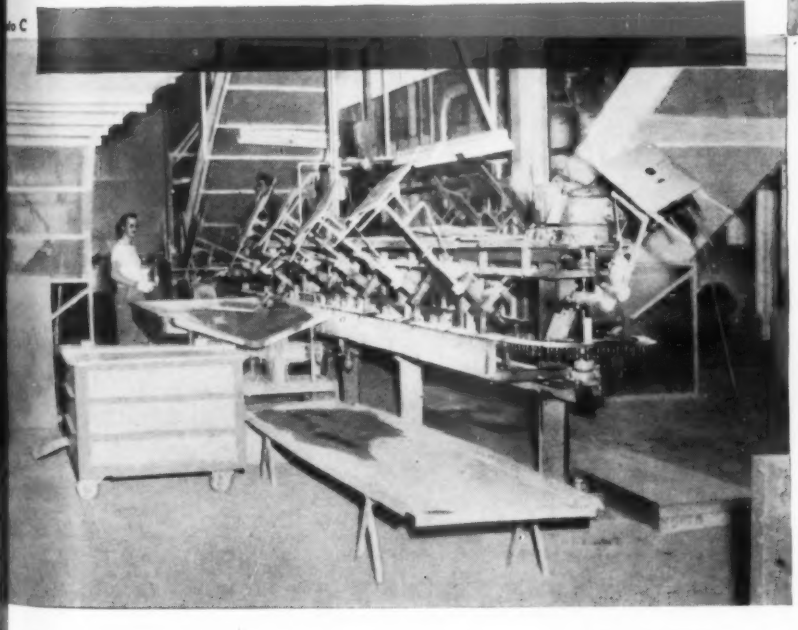
Blast cleaning of metal is replacing the normal pickling process on much of Maytag's Porcelain enamel production. The parts are passed through an alkali bath, then a "burn-off" furnace (photo A), followed by blast cleaning in a circular, automatic machine (photo B). Up to 600 tubs an hour are handled in this way.

Automatic dipping and draining cut Maytag's costs many ways

The automatic machine shown below (photo C) is another "Ferro First", one of several now operating in the industry. It can be loaded and unloaded by one operator, is now being used for both dipping and draining of ware. An ingenious feature of the machine is the manner in which the Porcelain enamel slip is distributed evenly over the metal surface. While revolving the piece clockwise, it abruptly changes direction, then changes back and forth, each time abruptly. This series of jolts removes any surplus slip.

Aside from really big savings in direct costs, Maytag has eliminated overspray waste in slip, also costly maintenance of spray booths and equipment. They save further through elimination of a compressed-air system and the wasteful discharge of heated air in an accompanying exhaust setup. Production on these machines varies with the size and type of ware being handled, but has exceeded 1,000 pieces an hour where a second operator has been added.





Automatic spraying improves quality, cuts costs on cylindrical parts

Uniform spraying, inside and out, is assured with this new, patented automatic machine (photo D, above). Two operators load and unload the ware. Production ranges from 100 to 250 pieces an hour, depending upon the time required for the spraying operation.

The only moving part is the fixture which carries the ware. This raises the piece into position and revolves while the piece is automatically sprayed, then lowers the work to the unloading position. Complete operation is automatically controlled.

Ferro Engineering handled the complete contract for expanding Maytag's Porcelain enameling facilities, provided many other cost-reductions in handling of ware and automatic controls to improve quality. For full details, check with the Maytag people—or write . . .

FERRO CORPORATION
ENGINEERING DIVISION
4150 East 56th Street • Cleveland 5, Ohio

Maytag's integrated two-furnace operation

integrated two-furnace set-up hosts number of outstanding features. Complete details given on blast cleaning, automatic applications.

by Robert Thompson • *SUPERINTENDENT—PORCELAIN ENAMEL FINISHING*

Exclusive feature finish

WHEN *finish* last reported on the porcelain enameling operations at Maytag*, they classified the section as one of the most modern in the industry. However, much has happened in that operation at Newton, Iowa, since that report and the new integrated two-furnace operation hosts an array of advancements and innovations that makes it one of the outstanding present day porcelain enameling facilities.

The earlier facilities have been doubled and now cover a working area of some 40,000 square feet. The major additions include a new porcelain enameling furnace and the complete package of equipment that makes up the shot blasting operation.

On the accompanying pages are blueprints showing the flow plan for the shot blasting operation as well as the newer porcelain enameling section. These are only part of the modernization, however, and are illustrated merely to show the extent of the advanced engineering that makes up the present day operation.

Details on the operation

In Maytag's new integrated two furnace operation, a continuous conveyor line set-up feeds the parts, in planned sequence, from the fabrication department. Parts for pickling as well as shot blasting flow along the same conveyor line.

n the new operation, a burning and ting cycle has been added, replacing kling for spinner tubs, with more parts ng transferred from pickling to this ration, as the program progresses. This procedure was installed on Engineer- 's advice as the best possible metal paration (for porcelain enameling) for ts adaptable to this cycle.

ical shot blasting operation

In the present flow, the spinner tubs are ked off the feeder conveyor and fed into 22 foot long burn-off oven, serviced by a down slat-type powered conveyor. Con- ls for the oven are critically adjusted to ld the furnace temperature at 1050°F.

As parts immerge from this treatment, y are fed mechanically from the wered slat conveyor onto a roller gravity nveyor. This carries the ware on through 20 foot long cooling booth, then makes 90 degree turn, ending at a point di- tly adjacent to the loading point of the -less shot blasting machine.

cility for shot blasting

Shot blasting is accomplished on a totally ntained 10 chamber machine, equipped th a revolving table. Automatic blast- g of the tubs is accomplished in the four sting stations of the machine.

In this operation, one man picks up tub from the feeder conveyor and places onto the slat conveyor. The tube is pro- ssed through burn-off and cooling and rives within reach of the shot blasting erator. The operator picks up the tub and positions it on the blasting machine table. By the use of ingenious holding devices, the tub is automatically gripped and positioned in the absolute correct position for optimum results. It is then, by manual activation through a lever, started through the machine. As the tub emerges from the final blast stage, the operator picks it up and hangs it onto the conveyor that also transports parts from pickling. This conveyor is equipped with a feeder loop, allowing for minimum movement of the operator to hang up the part, and allows him to replace a tub in the spot left vacant in the machine without slowing down the cycling.

Pickling operation at Maytag

Parts not shot blasted are processed through Maytag's greatly expanded pickle operation where they are fed through a ten stage automatic cleaning and pickling machine. They flow on a continuous conveyor system through a three stage alkali cleaning, then after a hot water spray rinse, are fed into the 150° F acid tank. Parts are given a cold water rinse, then feed on through the nickel bath, the cold water rinse, the neutralizer, and finally to the 10th stage, the steam dryer.

Pickled parts continue on this same conveyor which passes by the shot blasting machine, as pointed out earlier, picking up these processed parts before continuing on to the porcelain enameling section.

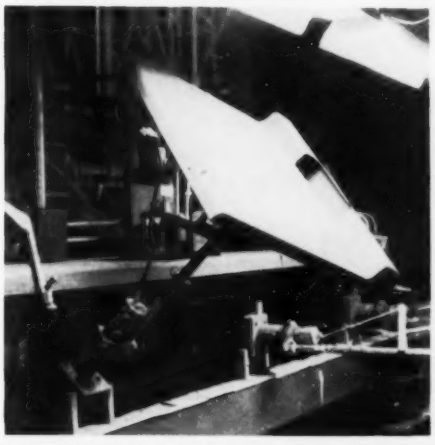
Parts porcelain enameled at Maytag fall into three classifications. Those that receive ground coat only: those that receive ground coat plus an alkali resistant overspray, and parts that receive the ground coat and cover coat. The automatic washer tub basin and half tub, the conventional washer tub strainer, the dryer drum, inner door, drum door, air duct and air duct cap all receive ground coat. Ground coat and cover coat are applied to the spinner basket, the top cover, the lid base, and the dryer top cover.

Parts porcelain enameled

Parts that receive ground coat and also an alkali overspray are the tub basin, and half tub, the dryer air duct and air duct cap, and the washer top cover and lid base (the latter two parts receive the overspray on the underside and a cover coat on top). There is an interesting observation to be made here. To assure optimum performance of those parts which may receive more than average contact with the waters used in washing and drying, the overspray put on the parts listed above is done to provide greater alkali resistance. This is applied to the ground coat bisque after the part has completed drying and just prior to processing through the furnace.

Another interesting application is made on the dryer drum. After it is reinforced in ground coat, a very light spray of standard titanium white is applied to the ground

photo by Gerry Hofstetter



***Large parts** have been successfully routed through the automatic dipping machine at Newton. The top for the Maytag Supermatic dryer, shown at right as it travels around the oval, is an excellent example. The machine is designed for one man loading and unloading. Parts are dipped, then revolved rapidly, halting and reversing at intervals, to jolt the part. The result is a thorough and even distribution of the porcelain slip over the surface of the part.*

***utomatic dipping** for application of porcelain enamel slip onto parts of the Maytag ne is accomplished on the above machine. A real money saver beyond its ability to crease productivity, is that it eliminates slip waste as well as need for air cleaning.*

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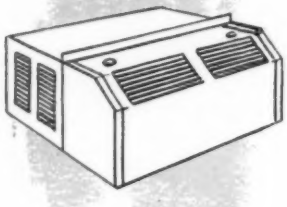


'Tuttle of Adrian'

H. W. TUTTLE & CO. • Adrian, Michigan

Manufactured and distributed in Canada by CRONAME (Canada) Ltd. Waterloo, Quebec

MAYTAG CERAMIC CONTINUED

coat bisque of the perforated section. This is an exterior application, providing for additional protection of the exterior as well as pleasant appearance for interior. This comes about as a result of the perforations in the metal, which lets enough of the white enamel slip through the holes to give a stippled effect of unusual yet pleasing appearance for the user's eyes.

The feed conveyor that comes from the pickle line and shot blasting operation first passes the ground coat dipping area where all parts, except the cabinet tops, lid bases, and spinner tubs, are hand dipped. At the next take off point, the conveyor feeds to the automatic spray machine for handling of spinner tubs. It then continues on to feed the automatic dipping machine which handles tops and lid bases.

Methods for application

Manual dipping is accomplished in the conventional manner using water cooled dip tanks. In the automatic ground coat spray operation, the booth is designed for simultaneous coating of the tub interior and exterior. Three guns are permanently mounted in correct position for exterior application, on a holding appliance fastened to the booth wall. Four more g
are suspended, stationary on a perma
mounting, from the booth ceiling, and th
apply the interior coat.

These guns, combined with an elevat
pedestal equipped with the revolving t
complete the necessary tools for gro
coating. Two operators service this bo
One operator takes the spinner tub fr
the service conveyor and sets it on t
pedestal table where it is automatica
gripped and positioned. A switch is a
vated and the pedestal ascends. As it reac
the point where the ceiling guns are en
ing the tub, a timer switch activates
seven spray guns and the coating is appl
simultaneously to the exterior and inter
as the same timer switch activates
spinning action.

The tub revolves at a pre-set speed fo
period of nine seconds, then automatic
halts and is lowered. The second opera
then picks off the tub and hangs it on
furnace feed line as the first opera
initiates the continuing sequence. Se
250 tubs can be sprayed per hour u
this process.

Automatic ground coat dipping

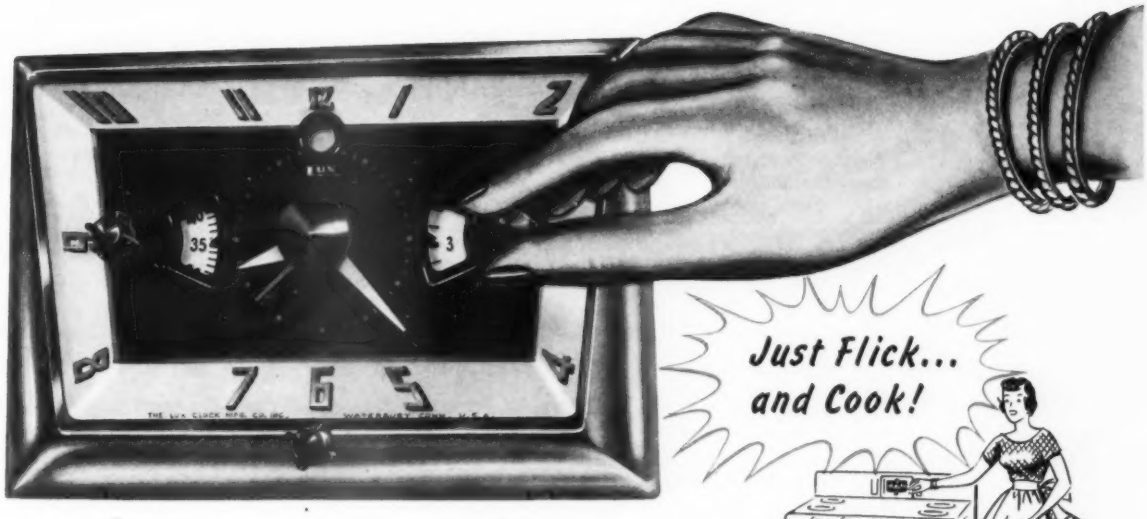
A multi-armed operation is the automa
dipping machine where the ground coat
applied. Parts picked from the service c
veyor are placed individually on each a
as the chain circles the oval fixture. E
arm is equipped with automatic gripp
devices—with special devices for each t
part—and the placement of the parts on t
arms is a speedy and accurate operation.

The versatility of this machine is well
lustrated in an accompanying photo wh
shows the size of part—in this case
dryer top—that can be handled. The m
chine operates on a cycling basis with
single part being immersed in the dip ta
at a time. Following the dip, the porcel
enamel is distributed evenly over the m
surface in the following manner. As t
suspended part travels on, it is revol
clockwise for a period. Then the atta
ment strikes an arm, causing a series
jolts removing any surplus slip as well
assuring an even coating over the m
surface.

Parts have time during the remainder
the travel on this automatic machine to a
dry sufficiently to avoid drain lines
scars during the part's transfer to th
ground coat dryer chain. The two ov
head dryers for ground coat are 500 a
560 feet long, respectively, and operate
a temperature of 250°-300° F, providi
fifteen minutes of drying before the pa
descend to ground coat reinforcing boot
It might be noted that the dryer convey
which feed through the reinforcing boot
loop to travel parallel to the furnace cha

to Page 52

LUX THE TIMER FOR NEXT YEAR'S RANGES!



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DEPARTMENT F

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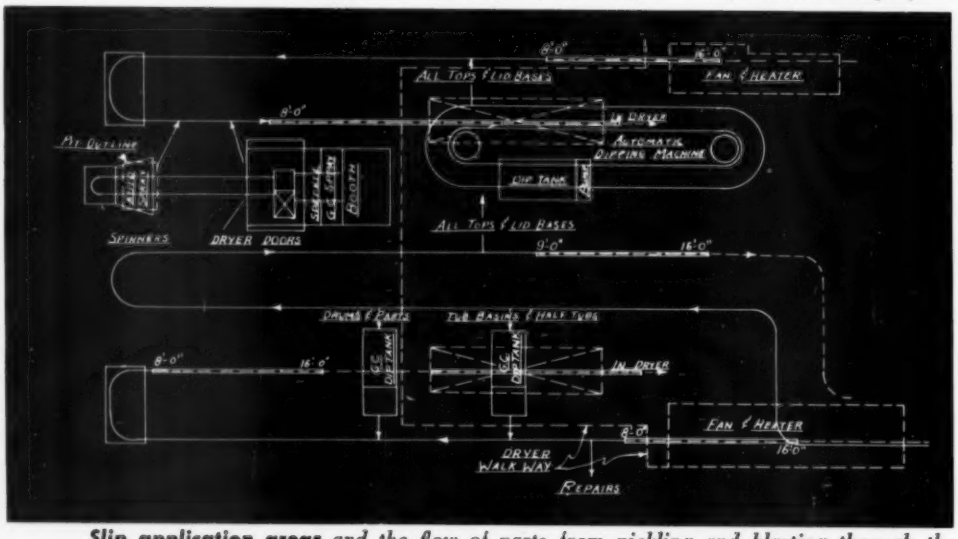
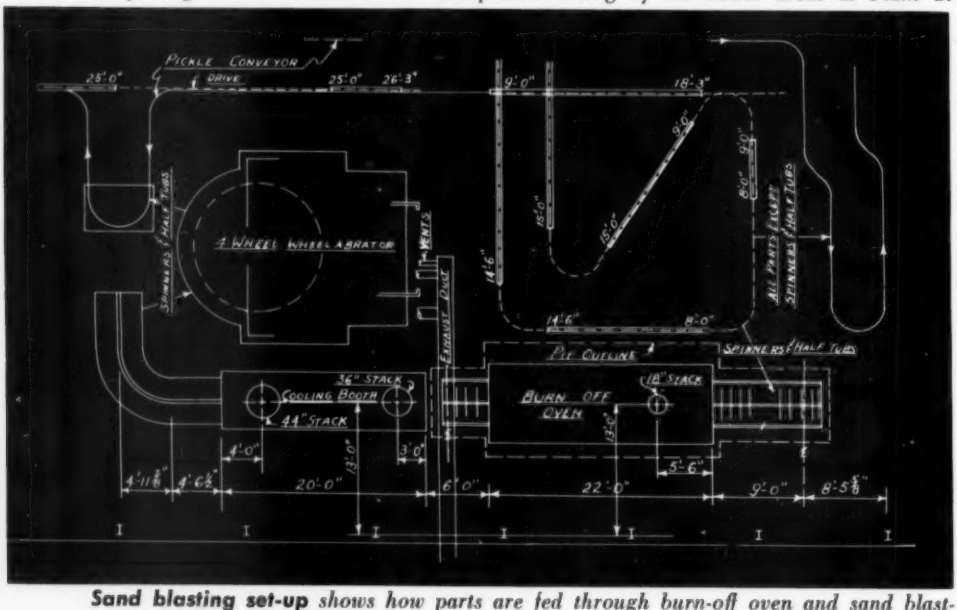
LUX Time
YOUR TIME-REMINDER LINE

Sand blasting *is done here. Operator takes finished spinner tub from holding hooks and places it back on feed conveyor. Tub at right is ready for processing.*

Alkali overspray *is sprayed into the tub basin interior, over the ground coat bisque, just prior to its processing through the furnace. Overspray is applied to provide added alkali resistance.*



Slip application areas *and the flow of parts from pickling and blasting through the many stages are shown in this blueprint drawing of the newer areas at Plant 2.*



Sand blasting set-up *shows how parts are fed through burn-off oven and sand blasting, then placed back on conveyor (bottom right, upper drawing) feeding spray area.*

MAYTAG CERAMIC CONTINUED

providing for easy transfer of parts t firing. The new ground coat furnace, tha Maytag put into operation this spring, pro vides for a complete cycle from load to un load, of 35 minutes. Chain speed for th furnace is 13 fpm and the hot zone is he at 1550°F.

Ground coat inspection

Leaving the ground coat continuous fur nace, parts which are scheduled for groun coat only are transferred to the assembl line service conveyor after inspection. An ground coat rejects after process inspectio at the take-off point, are hung on a con veyor which feeds back to the ground coa application area. The inspected and okayed parts that are to receive a top coat are hung on a service conveyor which feeds into what might be termed the other half o this expanded department.

Picked off spinner tubs receive thei white coat, inside and out, on the same type of automatic spray booth equipment as de scribed for their ground coat application The service conveyor then continues to th point where tops and lid bases are trans ferred to an overhead, monorail spray con veyor and are sprayed on the line. Inas much as color is applied to some of the exterior parts, a separate booth is pro vided for color application on the cover coat spray line.

All cover coated parts then go to over head dryers where they are dried in the cover coat dryers for a period of 15 min utes at 250° F. Parts to be brushed are transferred from the dryer conveyor to re volving brush tables where, after brush ing, they can immediately be transferred to the furnace chain.

It might be well worth pointing out that these brushing tables are designed so that all brushed off enamel is drawn by high velocity air into a chute and pulled into a

Manual dipping *is accomplished in the conventional manner using water cooled dip tanks for parts such as that shown in photo.*
Detail photos are finishfotos

Auto-spray set up, *detailed in the accompanying story, is shown here. Note the holding appliance for the three side spray guns as well as the suspended four guns.*

water washing dust collector, keeping the atmosphere free of floating particles.

The titanium type cover coat enamels are fired in a U-Type gas fired continuous furnace. Cycling time from load to unload is 25 minutes with the hot zone temperature set at 1540° F. Fired finish coat parts are then taken from the furnace chain and placed on an inspection belt conveyor. This travels through a highly illuminated inspection room where inspectors go carefully over each part. Okayed parts are hung on the conveyor that feeds final assembly. Parts that have been rejected at this final inspection line are ground down for patching with air powered hand grinders and reprocessed.

Supplying the assembly line

The finished parts from the porcelain enameling section are transferred to a delivery and storage conveyor that feeds the assembly line. This conveyor travels to a metal housing on the roof running the length of the plant. The conveyor makes eight loops through the housing before decending where needed along the assembly line. An assembler removes parts needed and the rest continue their ride, providing storage of enough finished parts for a day's production. This eliminates manual handling with its chances for injuring the finish.

"Finishing operations at Maytag" appeared in the November 1951 issue of *finish*, starting on page 21.

Maytag uses

NAGEL-CHASE CASTERS and V-BELT PULLEYS

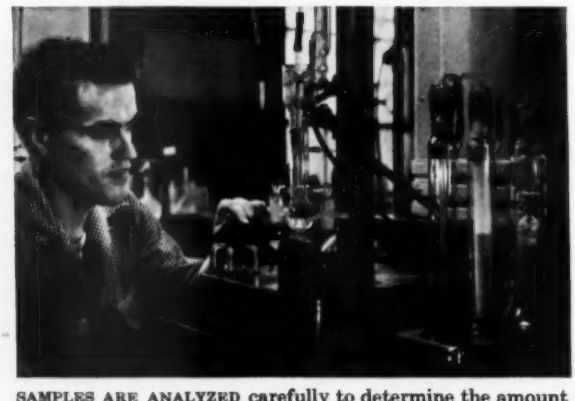
The Nagel-Chase organization is proud to be listed as a supplier of many years standing to the Maytag Company. Their washers and dryers have always been noted for the quality of design and construction of every part, and the fact that Nagel-Chase Casters and V-Belt pulleys have been selected so consistently, is indicative of their quality as well.

Today, when appliance mobility is more important than ever, it is more than ever imperative to select the right caster for your appliance. Nagel-Chase has been supplying the appliance industry with casters for over 25 years. They now make, or can make, just the right caster for your appliance, so consult Nagel-Chase on any of your caster or V-Belt pulley requirements.

NAGEL-CHASE MANUFACTURING CO.
2817 North Ashland **Chicago, Illinois**

How Great Lakes Steel *blends* quality

COKE OVENS eject tons of flaming, quality controlled coke into cars for rapid delivery to quencher. Then . . .



SAMPLES ARE ANALYZED carefully to determine the amount of sulphur present in the coke used in the blast furnaces.

Take five kinds of carefully selected soft coal. Blend well. Bake in a 2500° oven for 15½ hours. And if every step has been checked and double checked, the way it is at Great Lakes Steel . . . *presto!* you get pure, hard coke—the vital ingredient for reducing ore to high-quality pig iron.

Above, you see Great Lakes special coke recipe (cut in millionths, of course) being checked for ash impurities, a very important step in the complete analysis.

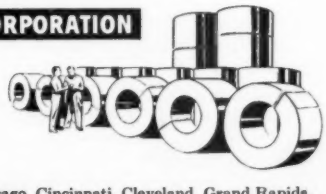
First, a sample of each kind of coal is burned to a cinder in the test furnace. Then the painstakingly mixed blend gets this dress rehearsal heat treatment, too. And this makes doubly sure that the blast furnaces produce quality iron . . . iron to make steel that meets customer specifications *to the letter!*

Quality control from raw materials to finished product—that's Great Lakes Steel! May we help you?

GREAT LAKES STEEL CORPORATION

Ecorse, Detroit 29, Michigan • A Unit of

NATIONAL STEEL CORPORATION



District Sales Offices: Boston, Chicago, Cincinnati, Cleveland, Grand Rapids, Houston, Indianapolis, Lansing, Los Angeles, New York City, Philadelphia, Pittsburgh, Rochester, St. Louis, San Francisco, Toledo, Toronto.

Maytag processes "million a day"

four automatic plating machines—for zinc, chrome and cadmium—feature of modern operation. Four manual machines also part of Maytag facilities.

by Don D. Daven • SUPERINTENDENT, PLATING AND RUBBER DEPTS.

MAYTAG's COMPLETELY MODERN plating department, from its physical housing to the outstanding safety features, are worth close scrutiny by companion industry engineers as an example of the ultimate. The department is part of the plant 2 structure, but is specially housed in an all steel frame construction with a roof of preformed concrete slabs. The exterior walls are brick. The interior walls are salt glazed tile, resistant to acid and weathering, providing pleasant working conditions as well as a surface easily hosed down and kept in a clean state.

Additional features include a full basement and an enclosed mezzanine that goes over about a fourth of the floor area. Power equipment for all the plating operations is housed on the mezzanine, along with the ventilation and heat exchanger equipment. Chemical storage, mixing equipment, and emergency tanks are in the basement.

Extensive protection facilities

Preparation of all plating solutions is done in the mixing area of the basement. From here, by means of a manifold system, they can be pumped to their respective plating tanks, or if necessary, to the holding tanks adjacent. All main floor plating tanks have individual safety tanks situated directly below in the basement which serve as emergency catch tanks for any possible spillage or leakage.

These as well as all tanks containing chemical solutions, are connected, by means of plastic piping passing through a "walk through" tunnel, to the chemical waste treatment plant outside. A system of piping interchanges allows the solutions to be pumped in the direction necessary, with all tanks, storage, emergency catch, plating, mixing—connected for flow to the waste treatment operation. No liquid waste can leave the plant without passing through the treatment facilities.

Elaborate waste treatment

Absolute controls are used in processing the waste through the waste treatment plant, resulting in the recovered water (80%) being chemically pure and safe, providing a water for use in the Maytag industrial operations that is more desirable for plant use (its total hardness is reduced from 450 to 50 ppm) than that pro-

vided by the community well supply. The remaining 20% of water, necessary for the treatment processes, is completely neutralized before it is allowed to drain off into the city sewage system.

This water is desired by the city to lend bulk to the community waste treatment operation and thus increase its efficiency. It might be noted that the efficiency of the waste treatment system now in operation at Maytag has received national attention—both in the press, and visits from national, state, and local officials working on anti-pollution or water conservation committees.

Air change every 20 seconds

In the plating operation, the addition was built with provisions for controlled atmosphere, permitting precision manipulation of air supply and currents to facilitate prompt elimination of all noxious fumes. A complete turnover of air through air make-up every twenty seconds assures this accomplishment. All plating equipment is on the main floor which is of 4″ reinforced concrete poured over a steel framework.

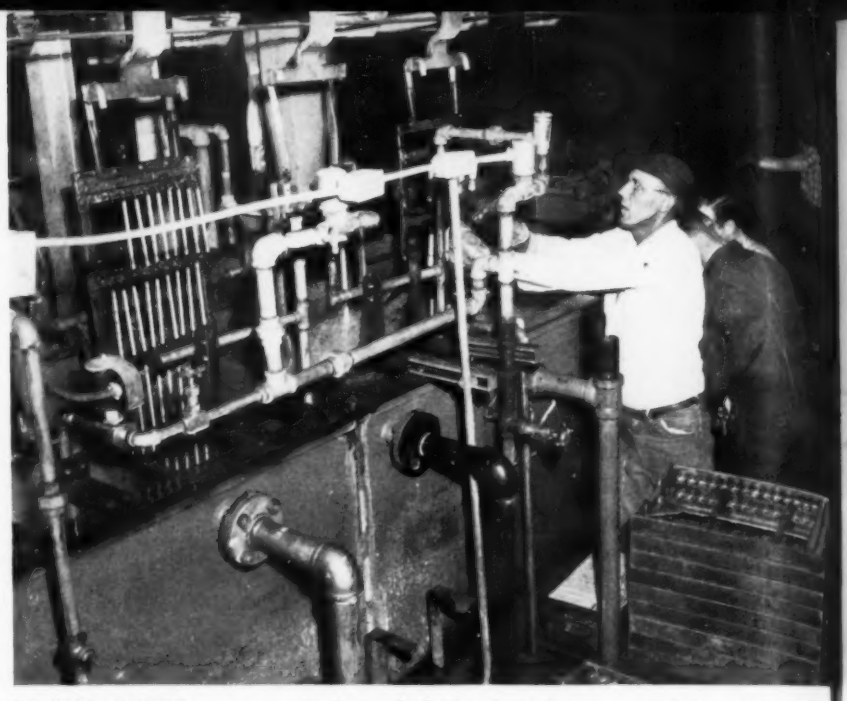
The four automatic machines handle the bulk of work in the operation. These consist of an automatic zinc barrel machine, automatic zinc rack-type machine, the automatic chrome plating machine, and the automatic cadmium machine.

The automatic zinc barrel machine

About 400 different parts, used in assembly of Maytags, are processed through the automatic zinc barrel machine which is equipped with forty-seven large barrels. Requiring some 300 horsepower for full operation, every two minutes a barrel completes its 2½ hour cycle. Small parts—pins, nuts, and bolts—are shoveled into a barrel at the beginning of the cycle in a predetermined amount, based upon surface area analysis (and controlled by weight) at the beginning of each cycle.

The barrel is loaded in a vertical mouth upward position. The predetermined correct amount is shoveled in, and, moving on the preset cycling plan, the barrel arm moves around, powered by the chain drive. As it passes over a hump cam, the barrel is raised to clear the side of the first processing tank, and then lowers itself into solution. As the barrel leaves this cam, the bronze gear on the arm engages the steel worm which causes the barrel to revolve continuously while it is in solution.

These steps of operation continue through each solution with the only variance in the cycle plan being in the amount of time in each solution, and in the final stage where the barrel is held in upright position, automatically as in every step, and revolves there as warm air is forced through the open mouth to dry the plated parts.



PLATED PARTS are successively washed in a drain-fog spray and two rinse and spr and two rinse and spray tanks, ten seconds per tank. They are then dipped in a s uble oil tank for protection of interior and other surfaces not plated as per spec

Automatic chrome plating

Maytag's nine tank automatic machine plates 0.3 mil of crack free chromium directly onto steel or solid copper. Maytag has helped pioneer the use of crack free chrome in mass production plating processes. The automatic machine processes some 25 different parts, depositing a satin type chrome finish, utilizing some 600 horsepower during capacity operation.

Conventional procedures are followed in this operation with a special chromic acid type bath used which provides uniform deposits. The bath, which has an automatic regulation of the catalyst concentration, receives steel having a finish of 30-50 rms. After 0.3 to 0.4 mil of chrome plating solution has plated the finish has a brush analyzer value of 307 rms.

Automatic plating operations

Chromium plating is done on a chainless return type automatic machine. Physical characteristics of this unit include: overall length, 42′6″; width, 7′4″; and ceiling height, 11′5″. The hydraulic drive unit requires 3′x5′ of area. Tanks, their volume capacity, and size are: anodic clean, 106″ long with tank volume of 640 gallons: rinse and clean tanks (4), 45″ long, 125 gallons each; anodic etch, 58″ long, 350 gallons; chromium plate, 590″ long, 3500 gallons; the drain fog spray tank is 22″ long, and the soluble oil tank is 22″ long with a volume of 125 gallons.

Based on the production of 90 racks hourly, parts are processed in the following cycle: anodic clean for 170 seconds; t rinse and sprays with a 10 second cycl each tank; anodic etch for 5-50 secon chromium plate, 1290 seconds; drain fog spray, 10 seconds; then the two ri and spray tanks with a ten second int val in each, and a 10 second soluble dip, used to protect the interior and plated portions of the plated parts.

A 130 second period is allowed in t continuous operation for end loading a unloading. Anodes are spaced on 18 i centers; plating tank racks on 16 i centers, and transfer racks on 18 i centers. At full capacity, the plating l will take 20,000—30,000 amps at 9 v with each hook rated at 1800 amps. Spe fications call for 0.2—0.4 mil plate to deposited in 18-20 minutes, a plating sp slightly better than 0.9/mils/hr at a c rent density of 3asi.

Critical controls required

Because of the close temperature con required, a control system has been stalled that keeps the temperature at 1 plus or minus one degree. This cons of a three-way valve operating through standard type temperature controller. blend of hot water acts as the cool/h medium in an evaporative cooler. Pa processed through this section range fr 1.75″ to 17″ in length and from 0.37 1.25″ in diameter. Except for the pi of solid copper, all parts presently be plated are of steel.

The zinc rack machine operation comparable to the zinc barrel machi operation and is only a larger facility those parts not suited because of their s or shape for barrel handling. This

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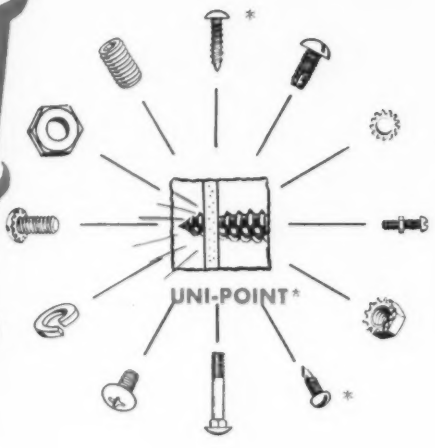
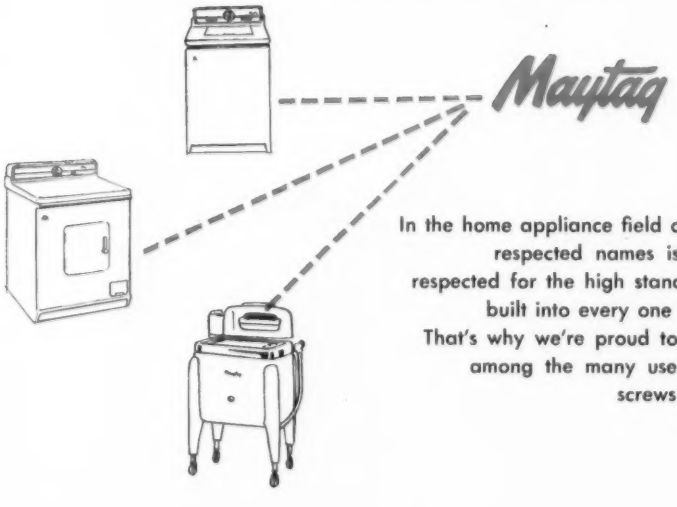
Universal Screws

ARE USED BY THE NATION'S LEADING APPLIANCE MANUFACTURERS



Appliance manufacturers everywhere know that precision components help build quality products. That's why so many of these progressive companies use Universal screws and fasteners for a variety of needs.

AMONG THEM ARE SUCH TOP NAMES AS



In the home appliance field one of the most respected names is Maytag . . . respected for the high standard of quality built into every one of its products. That's why we're proud to count Maytag among the many users of Universal screws and fasteners.

*Pat. Pend.

UNI-POINT* is an exclusive new development by

UNIVERSAL SCREW COMPANY

MANUFACTURERS

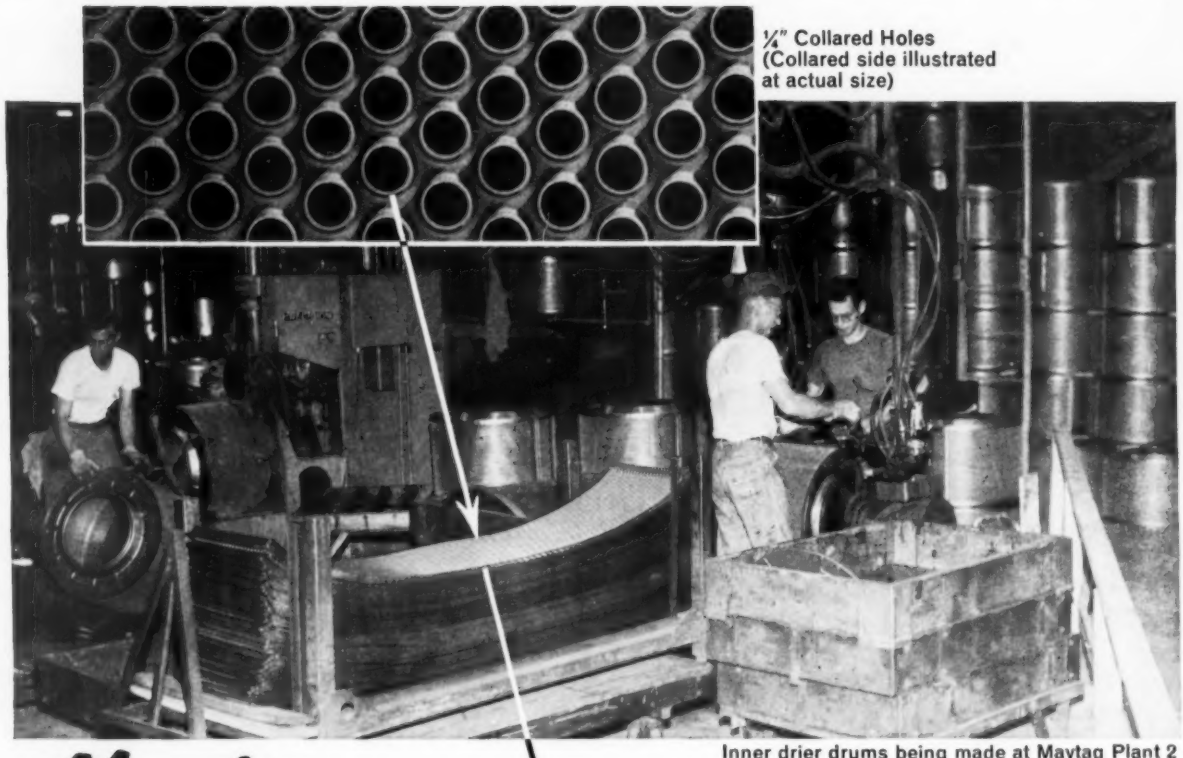
precision quality fasteners for the appliance industry

127 S. Green St., Chicago 7 Illinois — SEeley 8-3383, Teletype CG1767

SALES OFFICES

DETROIT, MICH.	CLEVELAND, OHIO	MILWAUKEE, WIS.	MINNEAPOLIS, MINN.
403 Curtis Bldg.	6007 Euclid	204 Broadway	7600 Highway No. 7
Trinity 1-2610	Express 1-8181	Broadway 2-1650	West 9-2525

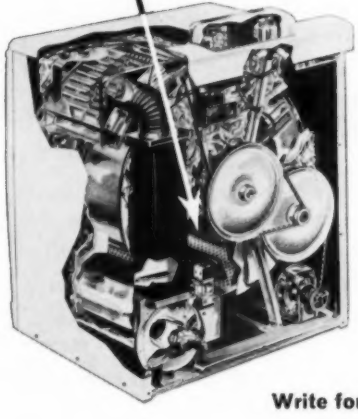
from these H&K perforated sheets...



¼" Collared Holes
(Collared side illustrated
at actual size)

Inner drier drums being made at Maytag Plant 2

Maytag drier drums are made...



H & K Collared Hole perforations have proved to be ideal for Maytag in the making of their inner drier drums. Snag-free drum is formed for greater protection to clothing.

For the right perforated pattern for your product, contact either H & K office or one of our agents and tell us about your requirements. We will be glad to work with you.

Write for H & K General Catalog No. 62, today.

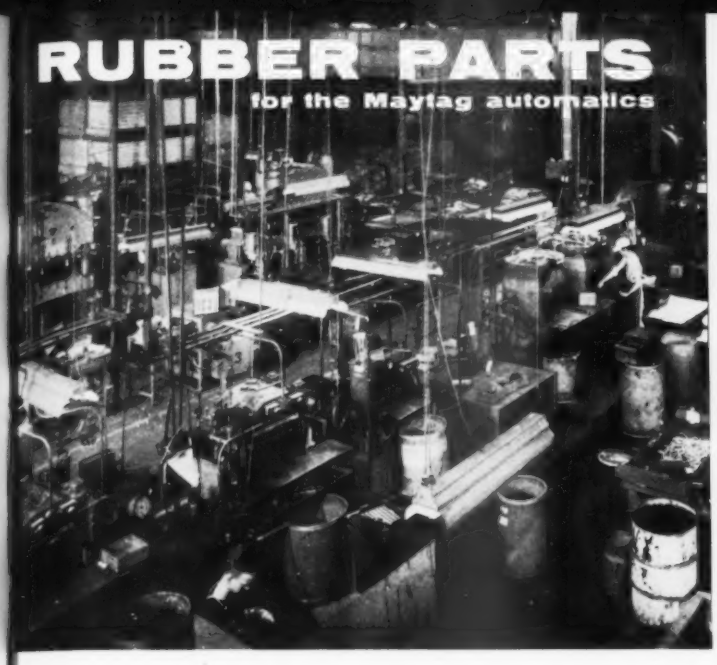
THE **Harrington & King** PERFORATING CO.

Chicago Office and Warehouse
5640 FILLMORE ST. CHICAGO 44, ILL.

New York Office and Warehouse
116 LIBERTY ST. NEW YORK, N. Y.

FIND NEAREST H&K AGENT IN THE Yellow Pages
Listed Under "Perforated Metals"

H & K Perforated Materials for the appliance industry . . .



Manufacture 75,000 parts a day

FORTY-EIGHT people, working in shifts around the clock, provide the 46 different parts made of natural or synthetic rubber which are used in the products bearing the Maytag name. Some 75,000 parts are made daily in this operation which includes processing from the mixing of the batch with raw materials to the final curing in as a finished part.

In providing for optimum performance of their entire product, Maytag engineers have taken careful study of every part going into each washer and dryer and have determined the needed characteristics for each different application. This has resulted in there being put to use in Dept. 89, the Rubber Dept., some 14 different synthetic, natural, and silicone rubber compounds, in order to obtain individual characteristics such as oil, water and alkaline resistance.

Before a mix can be used in the actual production of parts, each batch of approximately 125 pounds of rubber undergoes a processing period of about 24 hours. The batch is mixed, and curing agents are added, then sent through a 60-inch roll mill for sheeting. These rolled slabs are cooled by a water spray and are dried and aged for the 24 hour period. For constant quality control, a sample from each batch is sent through the series of control tests in the company's extensive laboratories.

Uncured rubber, to be used for molded parts, is extruded and then cut into slugs of the proper weight for manufacture of the particular molded part. These molded parts are cured by the same dies in which they are formed, through an application of heat and pressure ranging from 50 to 300 tons. Flash is removed from many of the small molded parts by freezing, utilizing dry ice in a tumbling drum. Other parts are trimmed by knives and scissors. Each press operator is responsible for the parts he is manufacturing and handles all flash removal and trimming operation, preliminary to inspection of the finished part.

Extruded parts, such as the drain hose and the band for the inner tub are made by forcing raw rubber stock through a die having the shape of the cross section of the part being formed. These extrusions are then laid in pans and cured in a large, open steam vulcanizer which operates at 307°F.

Maytag has achieved outstanding results in their molding of rubber to metal. The metal is specially prepared and coated with adhesive material to provide the bond. According to Maytag specifications, the bond of rubber to metal must be greater than the cohesion of the rubber itself. The prepared metal is inserted into the mold with an uncured rubber slug. Pressure and heat is applied and the finished part comes from the die, vulcanized and molded. Finished parts are then given final inspection and shipped in containers to the assembly area.

ELCO SCREWS

. . . Ask a man who has used them

Elco Screws are Good Screws

PIPE PLUGS These vital items are produced economically and accurately at ELCO by the cold-heading roll-threading method. The leak-proof "Dry-Seal" design is an ELCO specialty. Modified designs are engineered and produced to order. Second operation work is available, such as vent holes, safety wire holes, etc. ELCO Pipe Plugs are stocked in steel, stainless steel, aluminum, bronze, and brass. *Write for our stock list.*

WOOD SCREWS	PIPE PLUGS
MACHINE SCREWS	STOVE BOLTS
MACHINE SCREW NUTS	CAP SCREWS
TAPPING SCREWS	LAG SCREWS
THREAD-CUTTING SCREWS	DRIVE SCREWS
PHILLIPS AND SEMS SCREWS	SPECIAL SCREWS

COLD HEADED PRODUCTS

WE ALSO SPECIALIZE IN MAKING ANY OF OUR PRODUCTS OF THE FOLLOWING MATERIALS

Stainless Steel	Copper	Monel
Bronze	Silicon Bronze	Aluminum
Brass	Ambrac	Special Analysis

ELCO TOOL AND SCREW CORPORATION
1960 BROADWAY • ROCKFORD, ILLINOIS

It's a smooth flowing operation

modern warehouse facilities, present change-over to automatic packaging, savings by package pre-testing, among the features

by Frank Hayler • SUPERINTENDENT—ASSEMBLY, PLANT 2

Exclusive feature finish

Efficient packaging of Maytag automatics is just one of the many features that are a part of the operations in the packaging and shipping operations of the Newton, Iowa, Plant 2 manufacturing facility. A great amount of money and effort is spent annually on this facet of production to be sure that the most satisfactory of methods are used to assure delivery of each unit in its original condition at the customer's door.

Actual packaging of the washers and dryers begins on the assembly line when, with the unit still in an upsidedown state in the initial stages of assembly, it is fitted with its wooden pallet. At a later stage of the line, a unique turnover machine picks up each unit, by the pallet, and having firmly secured it, upturns the unit to its proper position.

Final operations are then completed on the assembly line and the unit is fitted with its cabinet, the remaining necessary components, and sent through the inspection testing cycle.

In the packaging operation, the first step calls for internal packaging. The washer accessories, drain hose, hot and cold inlet hose, are packed inside and under the machine. As the completed washer moves along the conveyor, a carton bottom cap inserter automatically feeds the car board bottom beneath each pallet. A fo section shipping tag, which includes seri number, model, and other data, is place under the machine lid. Support packagi also is added at this stage and holds th inner tub assembly against damage durin shipment.

As the machine moves along, the carto tub is placed over the machine. Four car board corner posts are added and a pa is placed on top of the machine. A to cap is then placed on, fitting over the edg of the open end carton. This fitting is du licated at the bottom.

When the carton is assembled the fou

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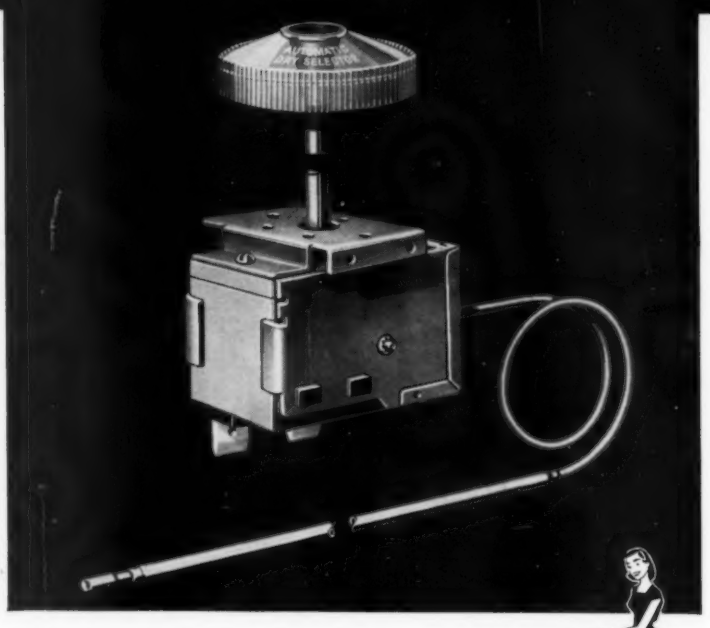
The Maytag program for quality control reaches back to the box testing laboratory

CONTAINER CORPORATION OF AMERICA

38 South Dearborn Street, Chicago 3, Illinois



Ranco Controls

...so easily adapted to your dryer requirements

More than a million Ranco Clothes Dryer Controls already in service have proven their dependable performance and easy adaptability to specialized dryer applications. And Ranco's versatile model C11, shown above, is a case in point.

Here, for example, are a few features of the C11 which provide easy modification to your own dryer requirements and assure the performance you require:

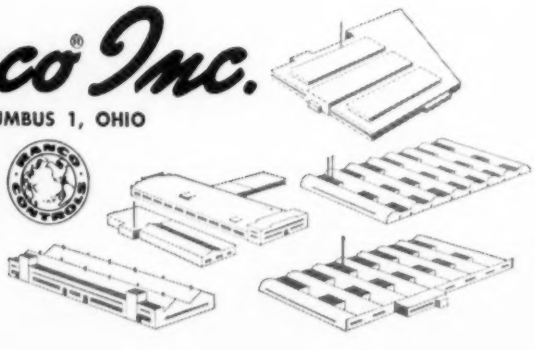
- Coordinates with timer motor to provide dial or push-button temperature cut-out control.
- Mounting bracket has multiple holes for flush or side mounting. (Special brackets available.)
- Quick-disconnect or screw-type terminals.
- Available with auxiliary switches to control additional heater circuits.
- Electrical rating, listed and approved, is 25 amperes, 250 volts, a.c. and 125 volt-amperes, pilot duty at 125 volts, a.c.
- Bright zinc, Iridite treated exterior finish.

The C11's unusual versatility is typical of the wide variety of Ranco Controls designed to meet unique dryer applications. For complete information with respect to your own control requirements, contact: Ranco Inc., Columbus, Ohio.

More than 10 million controls a year are produced at Ranco's five big plants —proof of Ranco's leadership in the control industry.

Ranco® Inc.

COLUMBUS 1, OHIO



PACKAGING CONTINUED

section tag is removed from the lid and placed under the top cap where it is exposed to the outside. As the caps are wired to the carton the operator removes the four section tag fro mthe cap and glues it to the side of the carton, removing the lower section for retention for departmental records of machines produced.

As the package is completed, one operator adheres the National Safe Transit sticker, signifying that the package has been thoroughly pretested in accordance with NST committee recommendations.

The company has the complete testing equipment, recommended by the program, in their own laboratories. Pre-shipment testing has proven of great benefit to Maytag.

The packaged unit moves up an inclined belt conveyor and continues overhead through the plant, passing the dryer assembly department, where dryers automatically are integrated on the same conveyor. It then leaves the plant in an enclosed overhead conveyor, crossing over to the Central Service warehouse, 140 feet away.

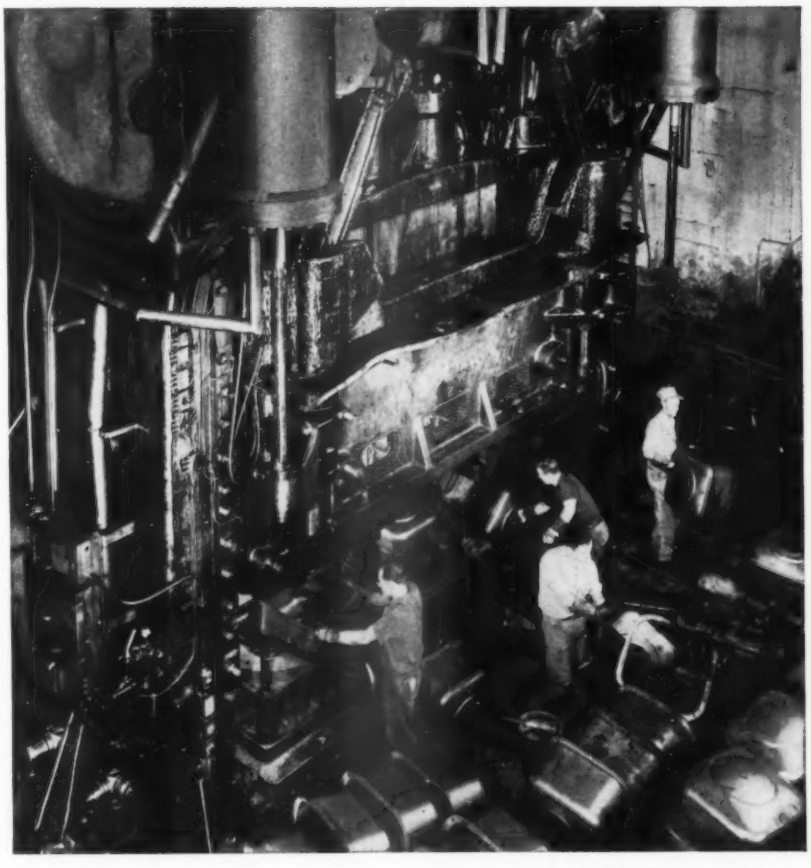
Descending the last 30 feet, the conveyor enters the warehouse at ground level and continues fifty feet to where an operator at a control panel sorts the products and automatically shunts them onto one of four spurs, where "squeeze trucks" pick them up, four at a time, for storage or shipment.

Appliances from the finished goods delivery conveyor or from storage are trucked for loading either in trucks at a dock on one side or to railcars on a spur along the other side of the building.

The warehouse, a new one-story windowless structure of concrete slab construction located just southeast of plant Two will provide storage for 30,000 finished Maytag appliances when an addition is completed. It serves as a central point for shipping mixed loads of appliances by both truck and rail, providing better service to dealers. Stock of all Maytag appliances, including those manufactured elsewhere, are warehoused in the 275,000 square foot building. The parts-service department is also housed in the structure, which will be a fifth of a mile long when the addition is completed. At this time, the second portion of the four section tag is removed. This part is used for billing and a record of shipments.

It might be well to point out that at this moment installation is nearing completion for the automatic packaging of the Maytags using an automatic packaging machine, much like that now in operation at Plant One in Newton. Another duplicate automatic packaging machine is also to be installed at the new monorail assembly section, planned for use on automatics and in operation by early Fall.

How Maytag gets finest quality in washer tubs—at substantial savings!



Maytag tubs are drawn and stamped in this 1000-ton Toledo press, one of the many presses of varying sizes in our 3 stamping plants.

White enamel is sprayed on Maytag tubs. The next step is high-temperature baking to give a hard, lasting finish. These are but two examples of the many finishing operations we offer.

Maytag demanded the best washer tubs they could get, at a price that would permit Maytag to meet tough competition in selling their finished products.

And Maytag found the answer at the Contract Stamping Division of Youngstown Kitchens.

If your interest is in large-quantity stampings, it will pay you to talk with one of our representatives. No obligation, of course.

We offer superior service based on 74 years' experience. This includes:

- **Engineering**
- **Diemaking**
- **Metal forming**
- **Processing**
- **Finishing**
- **Assembly**
- **Exclusive Koldflo® Process**

For simple parts or complete assemblies, write, wire, or phone: Manager of Contract Sales, Youngstown Kitchens Division of American-Standard, Salem, Ohio.

Youngstown Kitchens®

Division of American-Standard

SALEM, OHIO

American-Standard Products

RANSBURG *Electro-Spray* DOES IT BETTER... FOR LESS

Look what Ransburg Electrostatic Spray painting is doing in this eastern job shop, the Del-Val Finishers Division of J. W. Rex Company, Lansdale, Pa.

As a job shop, Del-Val handles a variety of work each month, painting hundreds of thousands of pieces and parts of various sizes and shapes.

The versatility and flexibility of Ransburg Electro-Spray makes it ideal for their varied painting requirements. Here's a typical example. Del-Val recently completed a contract for a Philadelphia manufacturer of barbecue trays with these results:

50% **INCREASE IN PRODUCTION**

50% **SAVINGS IN LABOR and OVERHEAD**

66% **CUT IN PAINT COSTS, with improved, more uniform, and higher quality finish.**

The job—flat sheet steel, 11" x 19"—enamel coated to withstand a 90 bend with sharp radius. Full coat one side; mist coat other.

WITH RANSBURG ELECTRO-SPRAY		BY FORMER HAND SPRAY	
Output, 375 panels per hour with 3 men		Output, 250 panels per hour with 4 men	
	per panel		per panel
Labor and overhead	.06	Labor and overhead	.12
Paint & lease cost	.017	Paint cost	.044
TOTAL COST	.077	TOTAL COST	.164

Want to know what Ransburg Electro-Spray can do for you in YOUR finishing department? Write for our new No. 2 Process brochure. It tells the WHAT & HOW of electrostatic spray painting, and with numerous production-line examples, shows how other manufacturers are cutting finishing costs... increasing production, and improving the quality of their work with Ransburg equipment. Too, we have available now a new movie, "The Big Attraction," a 27-minute sound and color film on electrostatic spray painting.

Ransburg **ELECTRO-COATING CORP.**

Indianapolis 7, Indiana

RANSBURG

USAIRCO MOVES OFFICE AND PLANT TO PHILADELPHIA

United States Air Conditioning Corp. has moved its main offices and plant from Minneapolis to Philadelphia, announced David E. Feinberg, president. The Philadelphia plant was purchased in January from Jordon Refrigerator Co., Inc., now a subsidiary.

NORRIS-THERMADOR TO MAKE BUILT-IN REFRIGERATOR-FREEZER

A built-in combination refrigerator-freezer with stainless steel front will be introduced under the "Thermador" and "L & H" labels this coming fall by Norris-Thermador Corp., Los Angeles, announced Kenneth T. Morris, president. The unit will have about 10 cu. ft. of refrigerator space and 4 cu. ft. of freezer space, with the freezer at the bottom.

HOME LAUNDRY MFRS. SEE HIGH SALES DURING 1956

According to Guenther Baumgart, executive director, American Home Laundry Manufacturers' Assn., factory sales of home laundry appliances for the first five months of 1956 amounted to 2,415,891 units, 8% over the corresponding 1955 period. Last year was a record year for the industry. Gas and electric clothes dryers lead the sales increase with an 18% increase over the first five months of 1955.

B. J. Hank, AHLMA president, reports, "Early returns in our Market Research Committee's current forecasting survey indicate that most members look for 1956 to be better than 1955, despite the April and May seasonal production decline. This outlook is consistent, of course, with continued high retail sales."

YORK STOCKHOLDERS APPROVE BORG-WARNER CORP. MERGER

Stockholders of York Corp., York, Pa., recently approved the merger with Borg-Warner Corp., Chicago. As of July 1, the company became York Div. of Borg-Warner.

R. C. Ingersoll, Borg-Warner chairman, stated, "Borg-Warner can help York grow to leadership in the expanding air conditioning industry. We believe York . . . has a tremendous growth potential."

NEMA RELEASES 4-MO. FIGURES

The National Electrical Manufacturers Association has released the following sales figures for the first four months of 1956: electric ranges, 452,913; electric household refrigerators, 1,184,073; electric storage water heaters, 224,670; and electric farm and home freezers, 216,416.

LEHMAN SUCCEEDS ROBERTS AS FRIGIDAIRE GENERAL MGR.

Mason M. Roberts, General Motors vice president and general manager of Frigidaire division, has retired and is

LEHMAN

succeeded by Herman F. Lehman, Frigidaire general sales manager, announced Harlow H. Curtice, president of General Motors. Roberts was with G. M. for 44 years and Frigidaire for 31 years.

Lehman was elected a vice president of General Motors at a board meeting in New York City on July 2.

VACUUM CLEANER MFRS. REPORT 22ND RECORD MONTH

Factory sales of standard-size household vacuum cleaners in May were highest for that month in the industry's history, rounded out the best opening five months and marked the 22nd consecutive month in which record business has been reported, according to the Vacuum Cleaner Manufacturers' Assn. Sales aggregated 326,011 units, an increase of 27.4% over May 1955 and down 7.6% from April 1956. Sales in the first five months showed an increase of 21.9% over the same period in 1955.

TEMCO TO BUILD $1 MILLION ENGINEERING CENTER

Temco Aircraft Corp. will build a one million dollar engineering center adjacent to its Garland, Texas, plant, Robert McCulloch, president, has revealed. The Engineering Dept., he stated, has doubled in size over the last two years; and a forecast of future growth indicates that a similar two-fold increase will be necessary in the immediate future.

WASTE KING SALES UP 12%

Sales of $11,740,923 for the fiscal year ended March 31, 1956, have been reported by the Waste King Corp., Los Angeles (formerly Given Mfg. Co.). This was an increase of 12.6% over sales for the year ending March 31, 1955. Samuel Given, president, reports that more than $500,000 was spent in the past year on product development. Included were acquisition of the incinerator line, broadening of the commercial line of garbage disposers, creation of supermarket disposer systems, and the final development of an automatic dishwasher introduced in April.

GAS FURNACE SALES UP 5.8%

Shipments of gas furnaces of the forced warm air and gravity types for the first five months of 1956 totaled 286,000, up 5.8% over the same period a year ago. Gas water heater shipments for the five months were up 2.9%, and gas range shipments were 9.9% lower than the corresponding 1955 period, according to the Gas Appliance Manufacturers Assn.

ASTE ANNOUNCES 5-YEAR TECHNICAL BOOK EXPANSION

More and better technical books for engineers in the tooling and manufacturing field are part of a new 5-year book publishing expansion program announced by the American Society of Tool Engineers. Plans call for publication of two major handbooks in the production and manufacturing field, as well as a revision of The Tool Engineer handbook, which has sold over 75,000 copies throughout the world. A number of shorter books are also scheduled. To accomplish the work, a field book editor network is being organized in each of the society's 132 chapters.

FORD MOTOR COMPANY Paints a Rainbow...

A technique in spraying developed by the Ford Motor Company results in exciting rainbow pastels . . . plus new speed in paint application . . . faster color changeover . . . and superb quality of finish.

DESPATCH built and installed the Down Draft Spray Booth shown above in Ford's Dearborn plant. Wealth of production experience assures the highest standard of performance from DESPATCH equipment. There's a DESPATCH-trained resident engineer near you. Why not talk to him about your finishing requirements?

Photo of interior of DESPATCH spray booth shows down draft air flow. Notice the wide working area around the production line.

Write for NEW Bulletin 51

Just off the presses!... 16 colorful pages of suggestions, tips and ideas on modern ways to achieve better finishes, faster production and smoother handling of metal products... at lower cost.

DESPATCH OVEN COMPANY

Minneapolis Office—619 S. E. 8th St.
Sales and Service in All 26 Principal Cities

PIONEERS IN ENGINEERING FINISHING SYSTEMS FOR INDUSTRY

TRANE PLANS CONSTRUCTION OF THREE NEW BUILDINGS

According to Trane Co. President D. C. Minard, three new building projects have been approved by the company's directors — a 5,040 sq. ft. addition to the research and testing laboratory, a 45,000 sq. ft. warehouse building and a 4,800 sq. ft. paint storage building. Trane construction activity this year, plus the latest building announcement, totals 241,800 sq. ft. of new manufacturing space and buildings the company will add to its La Crosse, Wis., operation by February 1957.

IBM TO BUILD KY. PLANT

Plans for a new electric typewriter plant in Lexington, Ky., have been announced by International Business Machines Corp., N. Y. C. The 386,000 sq. ft. plant will be ready for occupancy late this year, according to H. W. Miller Jr., general manager of the electric typewriter division.

SAYRE SEES HIGH APPLIANCE SALES TOTAL FOR 1956

Retail sales of major home appliances will soar over the 18,000,000 unit mark and may equal the 1955 record, predicted Judson S. Sayre, president of Norge Div., Borg-Warner Corp., Chicago, at the International Home Furnishing Market in the Merchandise Mart, Chicago. "For the first five months, retail sales of refrigerators are up 4% over last year, automatic washers 20% and automatic clothes dryers 40%," he declared. "Although, every day thousands (of consumers) are taken out of the appliance market for 10 years", according to Sayre, "there are at least two formidable growth appliances whose valuable potential is still to be realized — the automatic clothes dryer and the automatic washer. Still another appliance, the home freezer, will chalk up more than $500,000,000 in retail sales to cross the half-billion mark for the first time in history," Sayre forecasts. "These gains will be made in the face of competition that will be 'rough and tough' for the balance of the year."

WESTINGHOUSE NAMES FIGHTER MANSFIELD WORKS MANAGER

Appointment of Dean B. Fighter as works manager of Westinghouse appli-

ance plant in Mansfield, Ohio, has been announced by C. L. Van Derau, general works manager. Fighter replaces P. J. Backman, who has been named assistant to the general works manager, working on special assignments. Fighter was formerly manager of manufacturing.

YOUNGSTOWN KITCHENS UPS ONDO, PURVIS, AND HOWELL

M. L. Ondo, formerly general manager of sales, has become general manager of merchandising, for Youngstown Kitchens Div. of American-Standard, announces C. D. Alderman, vice president of sales. J. W. Purvis, previously manager of dealer sales, takes over the newly created position of manager of distribution. H. F. Howell is the new kitchen sales manager. He formerly was manager of builder sales.

DRS. MacKENZIE AND WHITE HONORED AT ASTM MEETING

James Tucker MacKenzie, Southern Research Institute, and Albert Easton White, consulting metallurgical engineer, were presented Honorary Memberships in the American Society for Testing Materials at the Society's 59th Annual Meeting on June 19 in Atlantic City, N.J. Dr. MacKenzie is retired technical director for American Cast Iron Pipe Co., Birmingham, Ala., and Dr. White is retired director Engineering Research Institute, and Professor of Metallurgical Engineering, University of Michigan, Ann Arbor.

AMER. MOTORS UPS ISBRANDT

R. H. Isbrandt, executive engineer, has been named director of engineering for American Motors Corp., Detroit.

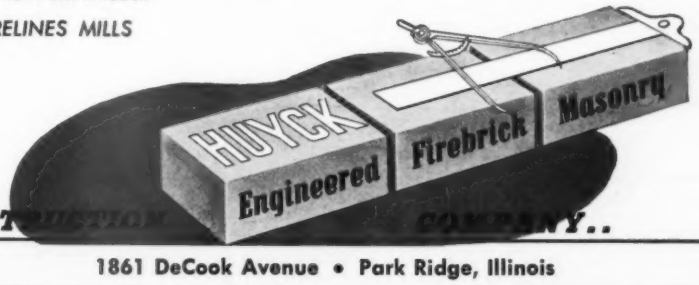
JOHNSON NOTES INCREASED USE OF PLASTIC IN REFRIGERATORS

Plastics are becoming more and more indispensible in the refrigeration industry, Roy V. Johnson of Midwest Mfg. Co., Galesburg, Ill., declared at the recent annual conference of the Society of the Plastics Industry. "With the availability of these molded plastic materials," he said, "the stylists and designers can dream up new ideas far beyond expectations. Its thermal properties and color possibilities, resistance to moisture and its flexibility of design are unmatched by any other material on the market today."

Johnson noted that 27 pounds of molded plastic parts now are incorporated in some of the company's deluxe refrigerators, not including a plastic inner door liner. He also cited the sharply increased use of plastics in the production of room air conditioners, the result of molded plastic components properties for greater resistance to condensation and corrosion.

HUYCK *FURNISHES FIREBRICK MASONRY TO BUILD, REBUILD AND REPAIR ALL TYPES OF: ENAMELING FURNACES . . . FRIT SMELTERS . . . ALUMINUM, BRASS, LEAD SMELTERS . . . FORGE FURNACES . . . HEAT TREATING FURNACES.*

HUYCK *LINES AND RELINES MILLS*



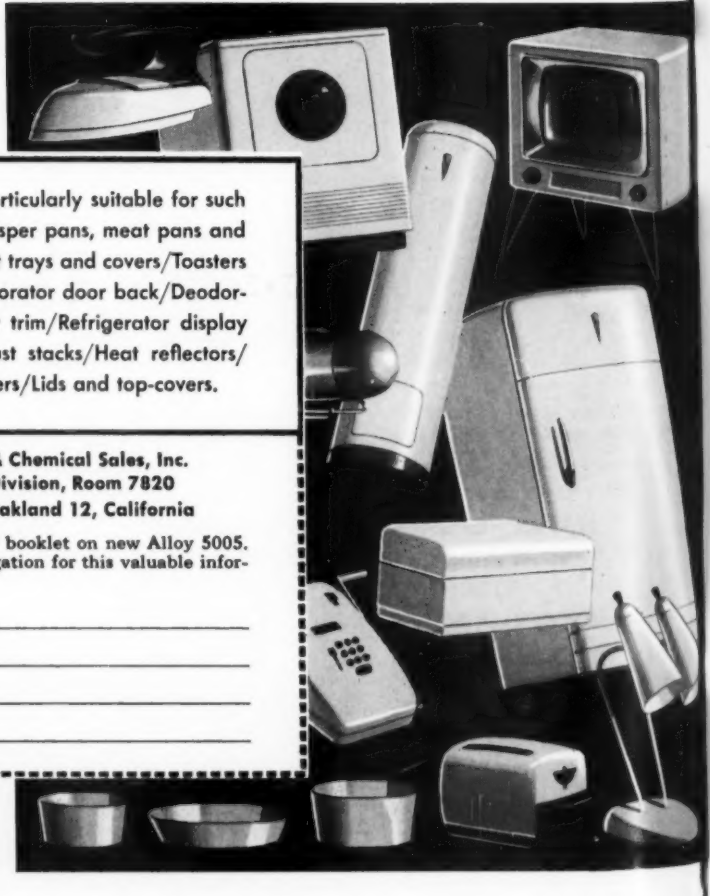
HUYCK *MASONRY IS GUARANTEED TO GIVE YOU BETTER PERFORMANCE AND LONGER LIFE*

Huyck CONSTRUCTION COMPANY..

1861 DeCook Avenue • Park Ridge, Illinois

New aluminum alloy...

5



New Kaiser Aluminum Alloy 5005 is particularly suitable for such applications as: Agitators and tubs/Crisper pans, meat pans and evaporator trays/Ice cube trays, dessert trays and covers/Toasters and irons/Evaporator drip baffle/Evaporator door back/Deodorizer parts/Refrigerator trim/Refrigerator display pans and trays/Exhaust stacks/Heat reflectors/Controls/Portable Mixers/Lids and top-covers.

Kaiser Aluminum & Chemical Sales, Inc.
Industrial Service Division, Room 7820
1924 Broadway, Oakland 12, California

Please send my copy of your booklet on new Alloy 5005. I understand there is no obligation for this valuable information.

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5005

SHEET AND PLATE

Improves appliance finish without raising costs

NEW superior-finishing Alloy 5005—now available from Kaiser Aluminum—offers appliance makers a new opportunity to create greater product eye-appeal.

SUPERIOR FINISHABILITY. 5005 has a finer, more uniform grain structure than 3003 (with an identical material cost). This fine grain contributes to simpler, less costly finishing and polishing operations, resulting in better, lasting product appearance. Alloy 5005 lends itself to a variety of electro-chemical, chemical and mechanical finishes.

EXCELLENT ANODIZING QUALITY. The lower tendency to streak or discolor makes Alloy 5005 particularly suitable for applications requiring an anodized finish. In particular, its finish is clearer and lighter in color *after* anodizing than Alloy 3003. Another important advantage is uniformity of color in the final finish.

STRENGTH. The mechanical properties and formability of Kaiser Aluminum Alloy 5005 closely approximate those for 3003 in the equivalent tempers. However, due to a slightly higher rate of work hardening, the use of Alloy 5005 will generally result in a stronger fabricated product.

NOMINAL COMPOSITIONS

Alloy 5005 0.8% magnesium

Send the coupon today for your copy of Kaiser Aluminum's new booklet of complete reference information on Alloy 5005. Or ask your Kaiser Aluminum sales engineer to give you a copy. At your request, he will be glad to contribute technical assistance for the design and fabrication of Alloy 5005.

Contact any Kaiser Aluminum sales office listed in your telephone directory. Kaiser Aluminum & Chemical Sales, Inc., *General Sales Office,* Palmolive Building, Chicago 11, Illinois. *Executive Office,* Kaiser Building, Oakland 12, California.

Alloy 5005 Quality Produced by

Kaiser Aluminum

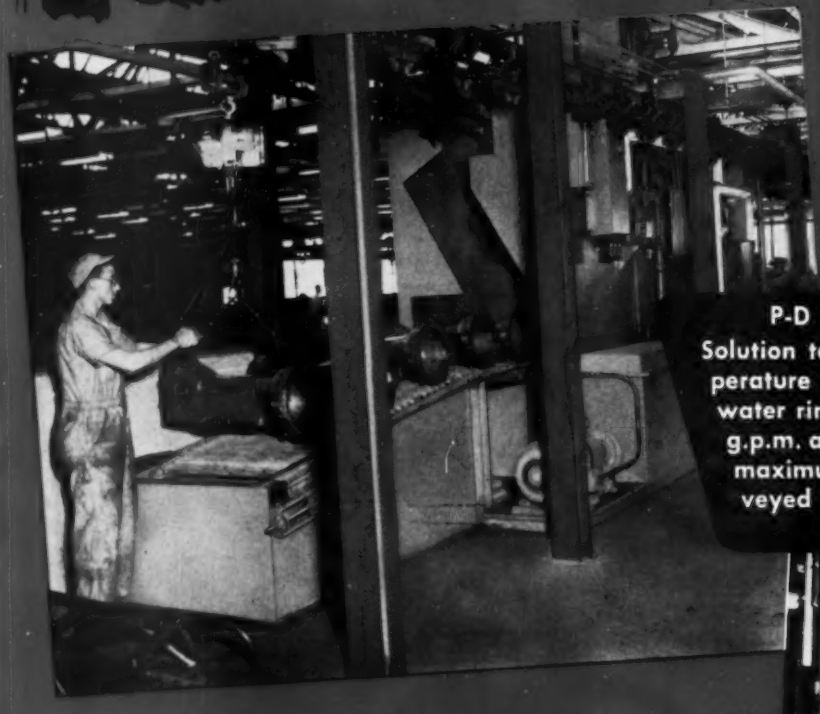
See "THE KAISER ALUMINUM HOUR." Alternate Tuesdays, NBC Network. Consult your local TV listing.

CLEAN UP your "DIRTY WORK"

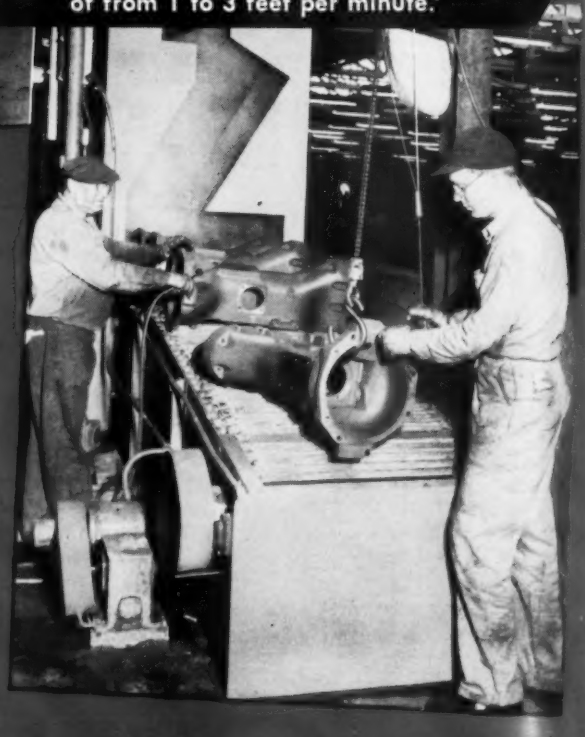
OBTAIN PRODUCTION-GAITED EFFICIENCY

—with a PETERS-DALTON

POWER SPRAY WASHER



P-D Two Stage Steam Heated Washer
Solution tank capacity is 1050 gallons. Tank temperature for caustic wash is 190° F. with heated water rinse of 180° F. — capacity of pumps 350 g.p.m. at 140 foot head. It is designed to handle maximum loads of 8000 lbs. per hour, conveyed on 32" wide belt with variable drives of from 1 to 3 feet per minute.



The P-D Power Spray Washer shown here is a work horse indeed. It was designed by Peters-Dalton engineers to deliver efficient cleaning operations for heavy tractor transmission housings and miscellaneous castings weighing up to more than 250 lbs. each . . . handling them with ease at a maximum speed of 30 of the largest pieces per hour. The illustrations above (at the left) show tractor transmission housings being lowered onto the conveyor belt for cleaning operations. The photo (at the right above) shows these housings leaving the washer . . . note the man blowing out cavities before the housings are conveyed back to final operations.

Peters-Dalton Power Spray Washers are designed, engineered, and fabricated for the job, and installed with an economy of floor space. Whatever cleaning operations you require . . . regardless of size, large or small . . . you can depend upon the more than quarter century of P-D know-how to deliver and install the washer most efficient for your needs.

Let us know your needs. Just write, wire or phone — we'll be glad to tell you more.

Representatives in principal cities.

- *Hydro-Whirl Paint Spray Booths*
- *Industrial Washing Equipment*
- *Drying and Baking Ovens*
- *Hydro-Whirl Dust Collecting Systems*

P-D Peters-Dalton INC.
A SUBSIDIARY OF DETROIT HARVESTER CO.
17890 Ryan Road • Detroit 12, Michigan

10TH HOME LAUNDRY SECTION TO HIGHLIGHT SEPT. *FINISH*

Finish's 10th Special Home Laundry Section in September will highlight the progress and growth of the industry in the past 10 years. Included in the section will be a look at domestic sales and the export market for home laundry appliances. The ironer situation (and what one leading manufacturer is doing about it) will be reviewed, and soaps, detergents and textiles will be discussed by authorities in the fields. New developments, new products and new ideas will be illustrated and described, as well as the contributions of manufacturers toward continuing improvements. The growth, objectives and achievements of the American Home Laundry Manufacturers' Assn., a preview of the 10th National Home Laundry Conference and an article by B. J. Hank, AHLMA president, are other outstanding features of the Special Section.

WESTINGHOUSE APPOINTS ARBUCKLE, LOWERY, BROOK

J. J. Anderson, general manager, Westinghouse major appliance div., Mansfield, O., announces the appointment of W. R. Arbuckle as manager of the Refrigerator-freezer Dept. in Columbus, O., replacing S. J. Stephenson, recently named manager of the portable appliance division. F. A. Lowery succeeds Arbuckle as manager of the Water Heater and Kitchen Utilities Dept. R. P. Brook has been named manager of the Range Dept., replacing R. M. Beatty, newly-named manager of utility sales.

HUMMER MFG. JOINS AHLMA

Hummer Mfg. Co., a division of Montgomery Ward, Springfield, Ill., has been elected a regular member of the American Home Laundry Manufacturers' Assn., Guenther Baumgart, executive director, announced. E. L. Coveney, manager, will serve as Hummer's official representative to AHLMA. Hummer produces automatic clothes dryers, electric water systems, rotary power mowers, attic fans, cream separators, hammer mills, power take offs, trailers and pump jacks.

ABRAMS IS QUIET HEET PRES.

Stanley L. Abrams has been elected president and a director of Quiet Heet Mfg. Corp., Newark, N. J., a subsidiary of Emerson Radio & Phonograph Corp., Jersey City, N. J.

PURCELL IS SIEGLER VP

Robert L. Purcell has been elected vice president of Siegler Corp., Chicago.

THIS IS FOR MEN...

. . . who are interested in the advantages of of PEARLITIC MALLEABLE CASTINGS

● **You can slash production, machining and assembly costs with Albion Pearlitic Malleable Iron Castings. And, here's why:—**

. . . Albion's pearlitic malleable irons offer complete freedom of design for greater savings in machining time, the elimination of excess metal and lower finished part cost.

. . . Albion's pearlitic malleable irons afford unusually fine wear resistance with excellent bearing properties. Maximum rigidity and prolonged fatigue life offers outstanding endurance. Yield strength comparable to steel forgings.

. . . Albion's pearlitic malleable irons have a fine, uniform grain structure that machines easily and accurately with exceptional mirror-smooth finishing qualities. Extremely adaptable to localized hardening for specific needs.

Contact the Albion Malleable Iron Company now . . . they'll be glad to show you how many ways Albion's pearlitic irons can save you time, tools and dollars.

Remember . . . Albion's Research and Development Laboratory facilities and competent engineering staff are ready to help you design better products that can be made at lower cost.

ALBION MALLEABLE IRON CO.
Albion, Michigan

When the reputation of your product depends on critical *stampings* like these . . .

DE-STA-CO *Stampings for washing machine mixing valve*

Vital to most automatic washing machines is the mixing valve which regulates inlet water temperatures and flow.

For critical stampings in this vital part, a world-leading controls manufacturer* chose Detroit Stamping Company.

Let us be responsible for your critical stampings assignments, too!

A brochure is yours for the asking!

*Detroit Controls Corp. Detroit, Mich.

DE-STA-CO

DETROIT STAMPING COMPANY

Established 1915

404 Midland Ave., Detroit 3, Mich.

"America's Leading Job Stamping Manufacturer"

Look to Detroit!

A. O. SMITH UPS HIGGINS TO CHIEF ENGINEER

W. W. Higgins has been appointed chief engineer of A. O. Smith Corp., Milwaukee, on the staff of executive vice president, F. S. Cornell. Higgins was formerly director of engineering at the Permaglas Div., Kankakee, Ill.

CULLIGAN ANNOUNCES THIRD EXPANSION IN 2 YEARS

Culligan, Inc., Northbrook, Ill., is undertaking its third expansion program in two years, a $350,000 plant addition which will increase floor space by 40,000 sq. ft. and permit a 60% boost in production. Harold F. Werhane, president, announced Culligan is making plans for expansion of its organization to accommodate a 100% increase in sales volume over the next five years. Culligan sales for the fiscal year ended April 30 were 31% over previous year.

ANDREIKO TO SCOTT-ATWATER

Appointment of Albert Andreiko as production planning director for Scott-Atwater Mfg. Co., Minneapolis, outboard motor producer, has been announced by H. B. Atwater, president. Andreiko was previously chief industrial engineer and assistant planning manager for McCullouch Motors Corp., Los Angeles.

WESTINGHOUSE TO BUILD ADDITION TO RESEARCH LABS.

Westinghouse Electric Corp. will build an addition to its new Research Laboratories, announced Dr. J. A. Hutcheson, vice president of engineering. The addition wil consist of a four-story wing on the present building located in Churchill Borough, Pa. Construction is scheduled for completion in late 1957. The new wing, containing about 150,000 sq. ft. of laboratory and office space, will house the materials engineering dept., now located at the East Pittsburgh plant.

NATIONAL METAL CONGRESS TO BE HELD OCTOBER 8-12

The 38th annual National Metal Congress and Exposition will be held in Cleveland's Public Auditorium and Exhibition Hall, October 8-12. According to W. H. Eisenman, general manager of the show, which is a project of the American Society for Metals, 452 space reservations or confirmed sales had been received by June 1. At that time no more than ten exhibition spaces remained unspoken for. The 1956 show officials estimate an attendance upwards of 50,000. All equipment and new developments introduced by exhibitors will stress the "spend to save" theme which characterizes the exposition.

Concurrent with the show, scientific sessions will be held in four headquarter hotels. Participating in the Congress with the American Society for Metals (headquarters — Hotel Statler) are the American Welding Society (Hotel Cleveland), the Institute of Metals Div. of the American Institute of Mining, Metallurgical and Petroleum Engineers (Hotel Carter) and the Society for Non-Destructive Testing (Hotel Hollenden).

MENGE NAMED FRIGIDAIRE GENERAL SALES MANAGER

C. H. Menge, formerly executive vice president of the Eljer Co., Pittsburgh, has been appointed general sales manager of Frigidaire Div. of General Motors Corp., Dayton, Ohio, announced Herman F. Lehman, general manager. Menge is not a newcomer to the appliance business; he was instrumental in developing the first automatic washer.

RHEEM APPOINTS DAVIS

I. G. Davis, Jr., has been appointed director of planning for Rheem Mfg. Co., South Gate, Calif., announced Richard S. Rheem, president. Davis was formerly with the management consulting firm of Stewart, Dougall and Associates of New York. He will supervise marketing, planning and administration for Automotive, Major Appliance and Government Products Divisions on the West Coast.

APPLIANCES TAKE 50% OF PORCELAIN ENAMEL VOLUME

Household appliance manufacturing accounts for over 50% of the porcelain enamel industry's volume, according to the Commercial Research Committee of the Porcelain Enamel Institute.

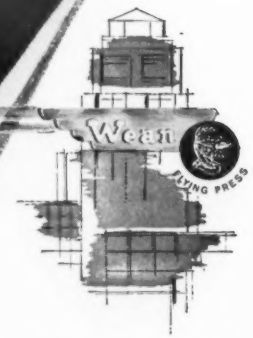
KEEFER TO FREIGHT LOSS SECTION OF R.R. ASSN.

The Freight Loss and Damage Prevention Section of the Assn. of American Railroads announces that R. Keefer has been appointed special representative with headquarters in Chicago.

RYAN HALF-YEAR SALES UP 12%

Net sales and other income of The Ryan Aeronautical Co., San Diego, Calif., for the first half of the 1956 fiscal year totaled $21,909,142, 12% over the same period of 1955, T. Claude Ryan, president, has announced.

The "NEW LOOK" in Production Stamping



AUTOMATION for the pressroom is just around the corner according to a number of the nation's leading press experts who have studied the revolutionary "Flying Press" approach recently announced by the Wean Equipment Corporation.

Taking a coil of steel directly from the mill, the Wean Flying Press Line decoils, levels, measures, blanks, sorts, counts and piles the finished piece on trans-car ready to be rolled to the next operation—at a speed heretofore considered unobtainable.

Present engineered lines will handle coils up to 72 inches in width—cutting lengths from 12 inches to 8 feet.

If low cost, mass production stamping appeals to you, why not contact a Wean Equipment engineer for full particulars? Write direct or call the Wean office in Chicago, Detroit or Newark, N. J.

DESIGNERS AND BUILDERS OF ULTRA HIGH SPEED METAL WORKING EQUIPMENT

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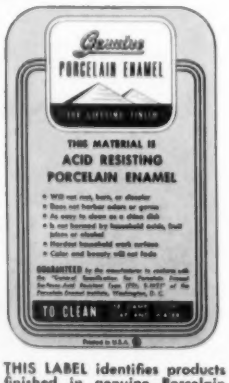
PORCELAIN ENAMEL stays white for life!

Permanent WHITENESS

—*always* an EFFECTIVE SALES POINT!



THIS LABEL identifies products finished in genuine Porcelain Enamel. Be sure to use it wherever you can. It has strong point-of-sale appeal.

Appliance manufacturers who use Porcelain Enamel offer prospective customers the one appliance finish that won't discolor or fade with age—the non-yellowing finish that keeps its original beauty and charm for life! Whether it is the ever-popular white, or a lovely new decorator's color, Porcelain Enamel is the one finish that is not scratched by skillets or knives, is not stained by juices, is not harmed by heat.

Use these outstanding advantages to gain quick acceptance of your appliances!

PERMANENT *Colors* TOO

Appliances finished in colored Porcelain Enamel have the same advantages as those finished in white . . . the same hard, glass-like surface that resists all forms of wear and scratching; the same rock-like composition that is proof against staining; the same high-temperature fusing that locks-in the qualities that make Porcelain Enamel supreme in appliance finishes.

Do you have the P. E. I. label folder SALES HELP? If not, use this coupon:

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1145 Nineteenth Street, N. W., Washington 6, D. C.

Please send a copy of the PORCELAIN ENAMEL SALE HELP FOLDER to:

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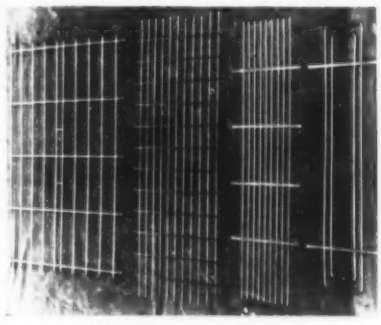
New Supplies and Equipment

H-10. Decorative wire grills

New Developed for television and radio sets, radiant heating units and similar ornamental needs, these decorative wire grills have light-



weight durable construction. They are plated in either brass or zinc, and finished to high lustre, protected by a transparent coating. Welded wire assemblies are available in round, flat, square or half-oval wire, and in any combination of these types. A range of geometric figures can be incorporated into the designs.

H-11. Wide face polishing wheel

New A new wide face polishing wheel has been developed which will handle widths up to 24". It is said to give an even buffing and polishing on the entire surface and to simplify the positioning of the work piece. It cuts down the number of heads necessary to process work pieces, reduces the number of passes needed to polish the work piece and gives the ultimate in positioning flexibility, according to the manufacturer.

H-12. Degreaser for automatic cleaning

New Automatic cleaning can be accomplished without manual labor with a new degreaser. In the solvent degreasing cycle a basket containing a large number of precision machined parts can be automatically picked up from a conveyor, immersed in solvent vapors and transferred to successive cleaner-sprays of chlorinated solvents — followed by vapor rinse and drying. Work can then be coated with filtered rustproofing oil and automatically discharged to the assembly area.

More Information

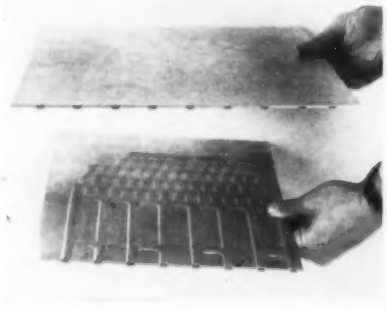
For more information on new supplies, equipment and literature reviewed here, write to us on your company stationery.

H-13. Control for plating plants

New Separate, automatic plating-cycle control, in production barrel plating plants, for each tank is achieved with a control unit having two signal lights and an automatic cut-off time switch. It is an improvement over previous models because it is more compact, lighter in weight and much lower in cost, according to the manufacturer. During the plating cycle the green light on the control box is on. It goes off upon completion of the cycle, and a red light signals the end of the plating cycle and shows that the current has automatically been cut-off. The controls permit safe removal of each tank barrel without danger of arc-started hydrogen gas explosions. Since the current can be turned off at will on each tank, burning and unnecessary corrosion of barrel contacting points and the splashing of electrolytic solution don't occur.

H-14. Aluminum tubed sheet

New A new tubed sheet evaporator with one side flat, and the entire tubing pattern expanded on the outer side will be of interest to manufacturers of refrigerators and home



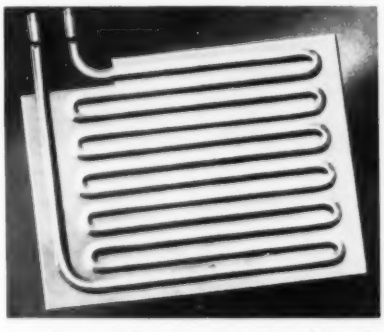
freezers. The flat inner surface permits direct contact with food packages, ice cube trays and other items, providing heat transfer by conduction and eliminating any insulating air spaces.

H-15. "60 Case" material

New A new type of industrial material designated "60 Case" has been announced. This designation covers long, round, hardened bars for use as guide rods, shafts, rolls, piston rods, axles, etc. Material is AISI 1060 Steel which has a surface hardness close to 60 on the Rockwell C scale, resulting in unusual wear resistance. It is precision ground to standard diameters.

H-16. Line of platecoils

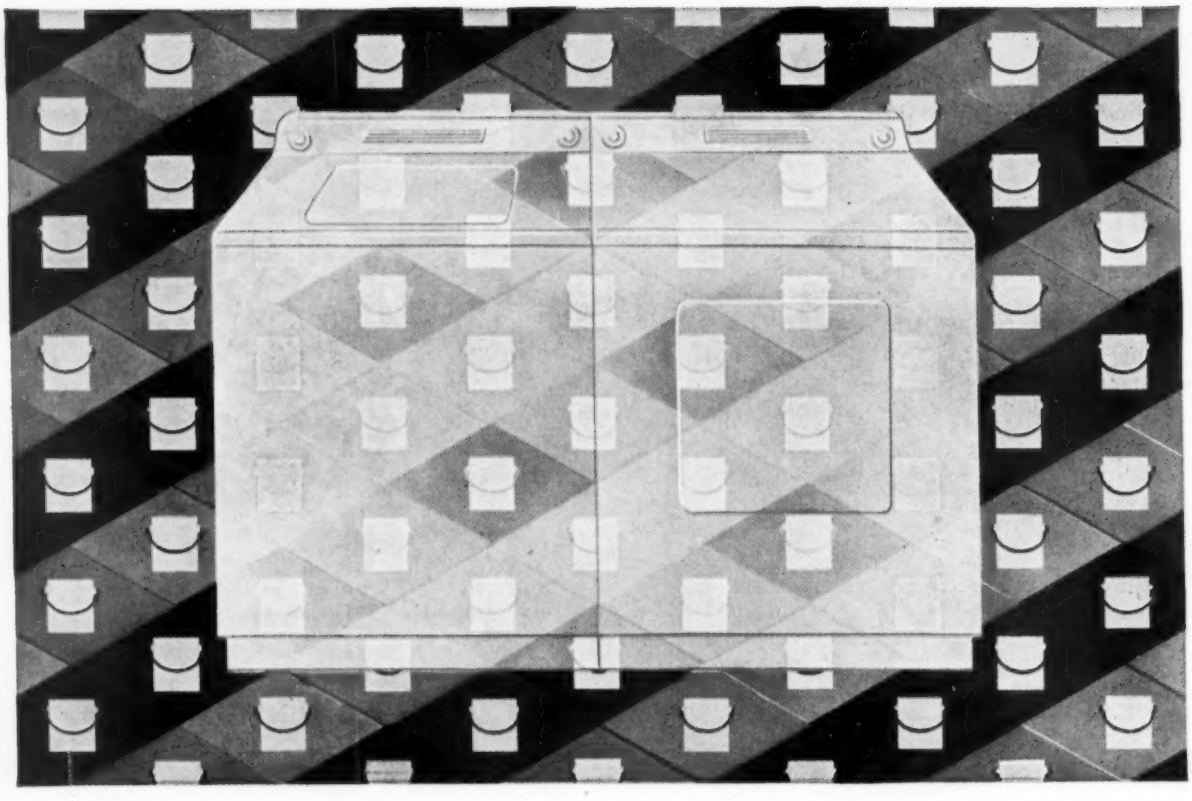
New A line of platecoils featuring serpentine construction and "at-the-top" connections is available. Platecoils are heat transfer units de-



signed to replace pipe coils where industrial processes require the application or removal of heat. Two embossed metal sheets, welded together, provide a preformed channel for the flow of heating or cooling media. The right-angle inlet and outlet fittings also make them suitable for use in open top tanks.

H-17. Specialized dial coating

New A specialized coating, formulated to produce clean, sharp, opaque color contrast on recessed or embossed dials is offered. The material produces a film that can be wiped off clean with a dry cloth during the initial drying period, leaving the coating that forms the pattern. Two types of filler are available: one which can be dry-wiped within minutes and a "quick-dry" formula that dries in seconds. It can be applied to plastic, wood, metal or ceramic objects by brush, roller, spray or squeegee in flat or dull gloss shades to meet all color standards. It is used by plastic, automobile, appliance and other manufacturers.



WHY IT TAKES 330 DIFFERENT WHITES

to finish appliances

Chances are, you've always thought that the smooth, gleaming finish on your refrigerator, laundry equipment and other household appliances is the same white enamel. Actually, no two are exactly alike.

Each has been custom-formulated to meet a consumer preference, a manufacturer's application method, a product's service requirements. For example, one can be hand-sprayed, will resist corrosion and strong alkalies . . . another is applied automatically, withstands staining, sharp impact and abrasion.

That's why Glidden has developed 330 different whites, each with specific resistance qualities, and possibly including one that may improve your product.

If not, Laboratory personnel and Technical Service representatives will work to your specifications in the development of a new formula. Write for complete information and finish data.

QUALITY Glidden PRODUCTS

The Glidden Company, Industrial Finishes Division, 11001 Madison Avenue, Cleveland 2, Ohio. Sales Offices and Factories: San Francisco, Los Angeles, Chicago (Nubian Division—1855 N. Leclaire Ave.), Minneapolis, St. Louis, New Orleans, Cleveland, Atlanta, Reading. Canada: Toronto and Montreal.

Industrial Finishes for Every Product

MEET CONTINUED

from Page 26

tain wall is porcelain enamel."

At least two major steel companies d representation at the Cleveland eting. As a part of the Wednesday ernoon program, William Withey, mco Steel Corp., spoke for J. G. Terry Armco on the subject, "Aluminum ated Steel for Porcelain Enameling." uminized steel had its first production the 1930's. It consists of a molten uminum-silicon alloy as a coating for el in one mil thickness. It is furished in gages from 24 to 13 and up to inches wide.

Present uses of porcelain enameled uminized steel include chalkboards, ns and letters and wall tile. There several jobs on the boards, accordg to Withey, for the use of this prodt for curtain wall panels.

Some indication of cost was given in estimate that the cost of enameling ts (one side) on aluminized steel is proximately 80 per cent of the cost standard enameling on enameling n or steel.

An interesting sidelight on Withey's presentation was the comment that Armco is expanding capacity for both enameling iron and aluminized steel.

John Dvorak of Ferro Corp., speaking for *E. W. Dany, vice president of the engineering division of Ferro Corp., on the subject of furnace requirements, stated that present day enameling furnaces do not adapt themselves to aluminum enameling. Convection heating is, he said, a must.

Electricity has been used largely in the new furnaces for porcelain enameled aluminum, but gas radiant tube furnaces can be used.

An excellent presentation of outstanding architectural installations and specific examples of the use of porcelain enameled aluminum for a variety of applications was presented by R. E. Parkinson, Kawneer Co., C. J. Jensen, Vikon Tile Corp., and B. C. Bricker of DuPont. Kawneer, one of the oldest companies in the application end of the development has been enameling 16-foot lengths of their "Zorite", that can be drilled and cut on the job, for a number of years. This material is sold through distributors. Complete wall units are now marketed, which include window frames, and mullions which can be set in place complete except for the installation of the glass.

Vikon Tile uses reciprocating spray equipment on an automated line for the production of porcelain enameled aluminum tile.

Many beautiful structures were shown by Bricker. One of the latest and an outstanding example was the Columbia Gas Building, Charlestown, West Virginia.

Although enameled aluminum for architectural purposes has the current spotlight and may continue to center there due to the vast potential, it was very evident that the producers of aluminum, aluminized steel and porcelain enamels (with accent on the metals producers) are out to develop a far broader market than the architectural field alone, with the commercial research men interested in surveying all possible outlets in the fabricated metal products field.

*(See article in an early issue of *finish* by E. W. Dany on new continuous furnaces for low temperature enameling.)

AYTAG FABRICATING CONTINUED

ton hydraulic, and the final trimming l blanking is done on a 250 ton mehnical. Final operation is forming the nish curl" on the upper rim, achieved on ther 200 ton mechanical.

It might be well to point out here that se parts, as they develop, are fed down forming line from press to press, via an borate gravity roller conveyor system t provides an even-flow operation.

Both the inner tub parts are finished and to storage, where they are paired and into the inner tub welding assembly. ere, by the use of a holding jig which tomatically positions the two parts corctly, they are mash seam welded. They then sent through an alkali bath where foreign particles, picked up during lding, are removed. The part is then inted into a press, die set-up, where each rt receives 1000 holes in a perforation ion accomplished with an internal cam ion die working from the interior of the . Six bosses and six large additional es are pierced simultaneously during operation. The result is a smooth erior absolutely free of burrs. The part n goes to the porcelain enameling area.

The half tub is formed in a series of ee operations from a steel blank. In first stage, the blank is drawn on a 0 ton hydraulic. The three sumps in bottom of the pierce are formed at the e time. It is these sumps, incidentally, ich serve as collectors of sediment cleaned out during the wash cycle. The sediment collected during this washing cycle is removed during the spin drain period in the following manner. At this period of spin drain, water is channeled into the sumps by means of three strips of rubber, ingeniously engineered, and fastened to the tube exterior during assembly. This channeled water is sufficient to clean out the sump and remove all sediment that may have been captured during the wash cycle to prevent its going onto the surface of the clothes during drain.

After the first forming, which included the forming of the sumps discussed above, the piece is fed into a 250 ton mechanical where the final forming of the sumps is achieved. Then, after trimming on a 200 ton mechanical, the part is placed on the service conveyor for delivery to the porcelain enameling section, or to storage.

MAYTAG PLATING CONTINUED

chine, used to process some 30 different parts, requires 150 horsepower for full operation. Some zinc plated parts are also processed through a chemical surface treatment for corrosion prevention.

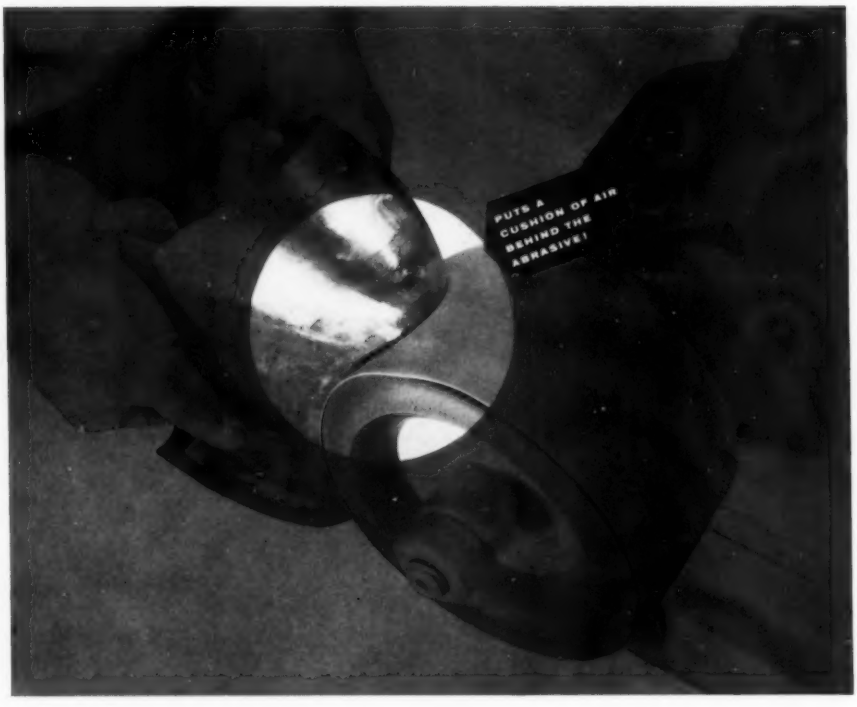
Approximately 20 different parts are processed through Maytag's automatic cadmium machine. Parts to be given this coating are those with irregular shapes which much more easily are plated properly by the use of cadmium, with its known properties for irregular shape plating, than zinc.

In the Maytag operation, the cadmium solution is operated at room temperature and in the current density range of 5 to 50 amp per square inch. The bath provides a good degree of uniform coating on parts of irregular shape. Composition of the bath is controlled by the total cyanide present analysis, since analysis of free cyanide does not assure constant accurate control.

All the plating in this department is done by direct current with high amperage and low voltage. In addition to the automatic machines, four manual installations are used for conversion coating of about 80 different parts. These manual operations include phosphating, passivating, still cadmium, and the hard chrome process.

Additional safety features, part of the operation, beyond the careful control of solutions and the waste and handling methods, are the eye-wash fountains which can be operated by forcing the face into the bowl (the forehead turn on the water flow by pressure on a strategically placed button) and emergency showers, both within immediate reach by any person working in the area.

Parts processed through this department range in price from approximately $3 per thousand to $3 a piece, with approximately 600 different types processed through each day, ranging from tiny cotter pins to the balancing rings used in the automatic washers.



Aircore Method Saves $1242 on Set-up Wheel Operations

Calculate the cost of operating one of your set-up wheel stations. Take ⅓ of that figure and you have the cost of doing the same jobs with Aircore Wheels. Your yearly savings per station can vary anywhere from $301 to $2184 depending on your present regraining costs.

Aircore Wheels are designed to perform the same jobs commonly done with set-up wheels. One large automobile manufacturer used set-up wheels to blend lead filling into rear fender contours. They switched to Model 535 Aircore Wheels using 36 to 48 grit abrasive bands. Not only did they realize considerable savings, but production was increased and a better finish was obtained.

Facts and figures are important, but they are of what others have done. How will Aircore Wheels work on YOUR jobs? How much will YOU save by replacing your set-up wheels with Aircore Wheels? You will know the exact answers when you put an Aircore to test.

DO SO AT OUR EXPENSE. Send for 25-day free trial. Give job requirements and type and size of power tools used.

THIS CHART SHOWS POSSIBLE SAVINGS WHEN AIRCORE WHEELS ARE USED INSTEAD OF SET-UP WHEELS.

If daily number of set-up wheels used by one operator is:	If regraining cost per set-up wheel is: 15¢	20¢	25¢	30¢	35¢
10	$301	$426	$551	$676	$801
20	$464	$714	$964	$1214	$1464
30	$684	$1059	$1434	$1809	$2184

These will be the yearly savings per operator using Aircore Wheels.

N-115

NU-MATIC GRINDERS, INC. 8224 Carnegie Avenue Cleveland 3, Ohio

Looking brighter — *the result of Hanson-Van Winkle-Munning's new bright nickel plating process "Levelume" — these steel panels are inspected as they undergo weathering test procedures, part of H-V W-M's quality improvement program. Here, Jack Hart, Detroit field electrochemist, Al Squitero, chief chemist, M. B. Diggin, technical director and vice president, Warren McMullen, metallurgist, and Jim Sweet, eastern field electrochemist, check the progress. "Levelume", according to H-V W-M, is the first bright nickel process to combine qualities of "full" brightness, high leveling and exceptional speed. Field tested in several hi-production installations, it has shown deposition rates 100% higher than the fastest processes available today.*

finish

. . foto-news

selected photos showing events about Suppliers, and their new products.

Outstanding gas range promotion *by Brooklyn Union Gas Co. won them first place in recent "Mrs. America Contest," a check for $500 and commemorative plaque. Here during presentation ceremonies, are Robertshaw-Fulton GSM Ben Gault and V.P. Charles Stainton, who made the presentation; AGA's W. W. Selzer, Brooklyn's V.P. William Hewson and Brooklyn's publicity director, Alan Smith.*

strial sales efforts *by M & E Mfg. Co. representatives with line of microspray guns and accessories were spurred on by national sales meet — held earlier — where M & E Prexy R. er pointed out (as he does here) features of their product. The — held in Indianapolis — was believed to be one of the largest les meeting ever held in the industry, according to Egener.*

Porcelain enamel signs *were displayed at the recent NESA meeting in St. Louis with this booth sponsored by the Sign Division of PEI telling visitors of the advantages of porcelain enamel. Examples of custom and quality type signs were shown and literature distributed.*

NEWS about Suppliers

HILL TO SCIENTIFIC ELECTRIC

Appointment of Howard Hill as sales and service representative of the Ionic Spray Div. of Scientific Electric, has been announced by John Sedlacsik, Jr., general manager of Scientific Electric, Garfield, N. J.

FERRO APPOINTS KUNZMAN

The appointment of Edward Kunzman to sales and service engineer, Frit Div., has been announced by W. N. Noble, vice president, Ferro Corp., Cleveland. Kunzman was formerly general manager of S. Paul Ward, Inc., Pasadena, Calif.

McDANEL $125,000 EXPANSION PROGRAM NEARS COMPLETION

The McDanel Refractory Porcelain Co., Beaver Falls, Pa., is completing a $125,000 expansion program. 2,500 sq. ft. of floor space have been added to the production area of the plant. Office and executive areas have been increased by over 400 ft.

RINSHED-MASON NAMES THREE

Roscoe F. Johnson has been appointed to the technical staff of the Rinshed-Mason Co. West Coast Div., Anaheim, Calif., according to Frederick G. Weed, president. Arthur G. Grey has joined the West Coast sales staff, and Keith Muller has been transferred from the headquarters in Detroit to the Calif. plant as industrial sales-service representative.

INTERCHEMICAL BUYS ANGIER

Interchemical Corp., New York City, has acquired the industrial adhesives business of Angier Products, Inc. Angier, with plants in Cambridge, Mass., and Huntington, Ind., will operate as Angier Adhesives Div. of Interchemical. Henry S. Bothfield, president of Angier, will become division president.

INLAND STEEL BUYS MILL

Inland Steel Co. announces that it has placed an order for a new universal slabbing mill, which is a part of the $260,000,000 expansion program announced eight months ago. The program includes a 15% increase in steelmaking capacity for its Indiana Harbor Works in East Chicago, Ind., from 5,200,000 to 6,000,000 ingot tons annually.

SCHUSTER IS PRESIDENT OF DESPATCH OVEN CO.

Gordon L. Schuster has been elected president and general manager of Despatch Oven Co. He has been associated with the company since 1940 and was formerly chief engineer and a vice president.

SCHUSTER

FISHER

FISHER IS SALES MANAGER FOR METAL & THERMIT

A. James Fisher has been appointed general sales manager of Metal & Thermit Corp., it was announced by H. D. McLeese, vice president. Fisher joined Metal & Thermit in 1955, serving as technical advisor to the president.

ROMIG ELECTED PRESIDENT OF AMER. CHEMICAL PAINT

Gerald C. Romig has been elected president of American Chemical Paint Co., Ambler, Pa., and Leon Cherksey has been elected to the new position of chairman of the board. Romig was formerly a vice president, and Cherksey was president.

OLIN MATHIESON APPOINTS NAVE TO NEW SALES POST

E. A. Nave has been appointed to the newly-created position of sales manager for fabricated products of the Metals Div., Olin Mathieson Chemical Corp., E. Alton, Ill., David T. Marvel, vice president of division sales, has announced.

NAT'L. LOCK TO BUILD PLANT

National Lock Co., Rockford, Ill., recently broke ground for its new 5 million dollar fastener plant. Located on a 167 acre site, the structure will provide over 600,000 sq. ft. of floor space.

CARBOLOY CHANGES NAME

The Carboloy Dept. of General Electric Co., Detroit, is now known as the Metallurgical Products Dept., reflecting the company's emphasis on specialty metals development and manufacture.

REPUBLIC STEEL UPS THREE

J. J. I. Jamieson has been appointed general manager of sales, Steel and Tubes Div. of Republic Steel Corp., Cleveland. Richard T. Nist has been named district sales manager of the Minneapolis office of the parent company, and John W. Davies has been appointed district sales manager of the Detroit office.

SHELL EXPANDS LABORATORY

Shell Chemical Corp. has announced the construction of a two-story addition to its technical service laboratory in Union, N. J. The new building will contain approximately 25,000 sq. ft. of laboratory and office space.

PETERS TO WEBB OF CALIF.

Jack Peters has been named general manager of the Jervis B. Webb Co. of California, announced Jervis C. Webb, president of the Jervis B. Webb Co., Detroit. Peters succeeds Paul Kuhn, who is retiring.

WHEELING STEEL EXPANDS

Wheeling Steel Corp., Wheeling, W. Va., announces it will spend $3,500,000 at its Benwood Works, Benwood, W. Va., as part of a previously announced modernization program. Nine million dollars has been allotted to improve the Yorkville, Ohio, works and $9 million for the Steubenville, Ohio, works.

PATTERSON MODERNIZES PLANT

The Patterson Foundry and Machine Co., E. Liverpool, Ohio, is installing an additional tunnel kiln at its Ceramics Div. and modernizing the drying and handling facilities at the same plant.

WORCESTER STEEL ADDS 400-TON BLANKING PRESS

Worcester Pressed Steel Co., Worcester, Mass., has added to its facilities a 400-ton blanking, forming and multiple operations press, announced Carter C. Higgins, president. The press was built to Worcester specifications, so as to provide the greatest possible versatility in handling a wide variety of stampings. Standing more than 20 feet high, it has a bed area for inserting dies up to 42″ in width by 7′ in length.

FIRST TO USE HUDEE...

Now using more Hudees than ever!

OTTO SEIFERT, President
Beautility Corporation
Chicago, Illinois

Mr. Seifert says: "At Beautility Corporation, where we manufacture great numbers of custom counter-tops and built-in kitchen and bathroom equipment, including our famous lavatory unit, we feel that HUDEE Frames are a most important part of every installation! We were the FIRST to use HUDEE way back in 1946. We're now using more HUDEES than EVER! The HUDEE Frame system has made possible the extensive, safe use of everything MODERN in counter-tops."

Hudee

the Standard of Quality

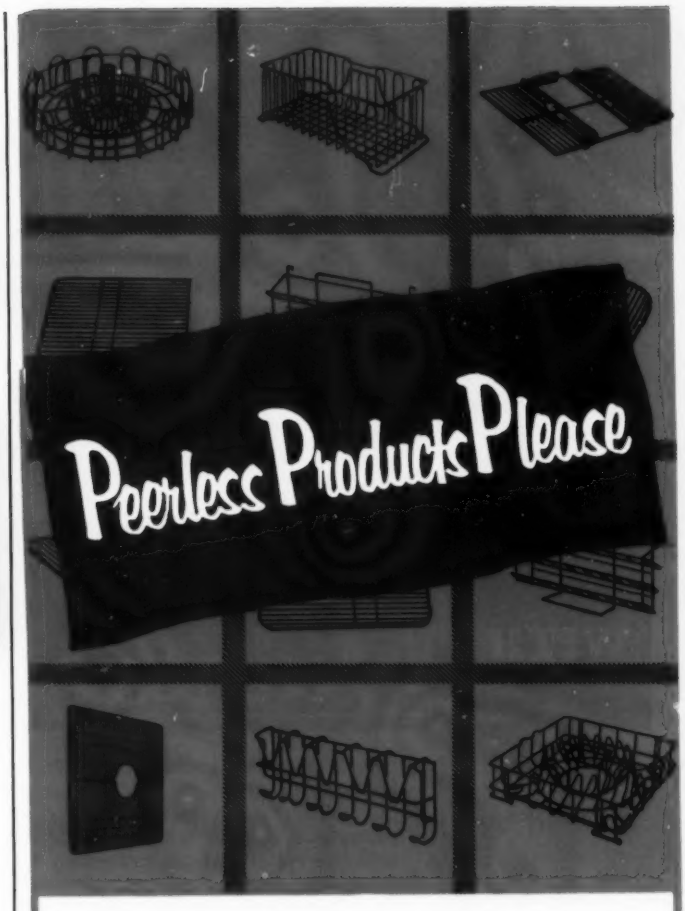
Hudee, the original clamp down frame system offers many advantages. When Hudee is used for the installation of gas and electric built-in ranges and modern sink bowls, you are assured of trouble-free performance. Hudee guarantees the highest standards in quality manufacturing and installation features. Hudee leads with engineering advancements. When you use Hudee you are using the finest.

Architects, Builders, Plumbers, Installers, Manufacturers and Home Owners everywhere agree —Hudee is the one sure way to a permanent, watertight, sanitary installation.

Patent Nos. 2,440,741 2,704,370

WALTER E. SELCK AND COMPANY

Call the Hudee Distributor in your area or write—
225 West Hubbard St. • Chicago 10, Illinois
IN CANADA: Walter E. Selck and Company, Ltd. - Toronto



This slogan adopted in 1910 when PEERLESS was founded is in all truth a fact. Pleasing customers in any field is important, particularly so in the wire goods field. This is the reason that through the years PEERLESS has been privileged to retain the friendship and business of its customers.

There is good reason why PEERLESS products please. PEERLESS products are *quality products.* From raw material to finished work, quality and quality alone reflect the care and craftsmanship upon which PEERLESS rests its reputation in the industry.

When your plans call for wire formed products, remember PEERLESS can do it faster, better, at less cost. *Send your specifications and prints for a quotation by return mail.*

Peerless WIRE GOODS COMPANY, INC.
2702 FERRY STREET
LAFAYETTE, INDIANA

ANCHOR YOUR PAINT FINISH

WITH DETREX Paintbond®

Detrex Paintbond provides positive anchorage for your paint finish . . . permanently locking the paint to the metal. Paintbond is a zinc phosphate coating which chemically interlocks with the metal surface, providing the ideal base for paint finish.

Your product will have *more sales appeal* when you use Paintbond because of these features.

1 It completely seals metal surface from moisture and other causes of corrosion.
2 It retards corrosion if the finish is scratched.
3 When scarring penetrates the metal, Paintbond restricts rust to the area of the scar.
4 It improves product appearance . . . smoother surface, more lustrous paint finish.

Detrex Paintbond will save you money, too! It coats a larger surface area per drum—or will give you a heavier coating with the same amount of compound. You also have greater control of coating weight and crystal size. Mail the coupon for complete information.

☐ Send me complete information on Detrex Paintbond. J-5159

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DEGREASERS • DEGREASING SOLVENTS • WASHERS • ALKALI AND EMULSION CLEANERS • PHOSPHATE COATING PROCESSES

AZI APPOINTS BATTELLE INST. FOR RESEARCH PROJECT

Battelle Memorial Institute has been commissioned by the American Zinc Institute, Inc. to undertake a research project covering new and improved finishes for zinc die castings. According to John L. Kimberley, executive vice president of the Institute, the project will be directly supervised by an AZI committee to include E. A. Anderson, New Jersey Zinc Co., A. A. Smith, American Smelting & Refining Co., and R. C. Bell, Consolidated Mining & Smelting Co. of Canada, Ltd. Advisers will include M. R. Caldwell of Doehler-Jarvis Div., National Lead Co., and M. Diggin of Hanson-Van Winkle-Munning Co.

HARVEY ALUMINUM OPENS NEW ENGINEERING OFFICES

Harvey Aluminum, Torrance, Calif., has opened new engineering offices in Atlanta and Detroit. Charles D. Menser has been appointed district sales manager for the southeastern region, with offices located in Atlanta.

FORT WAYNE CORRUGATED APPOINTS PISARCZUK

T. H. Pisarczuk has been appointed packaging engineer for Fort Wayne Corrugated Paper Co., Fort Wayne, Ind., announced K. R. Martin, coordinator of engineering services.

CARBORUNDUM UPS BRALTS

J. W. Bralts has been appointed manager of the Market Research Branch of the Carborundum Co., Niagara Falls, N. Y., according to Frederick T. Keeler, director of the marketing division.

INTERNAT'L. PAPER UPS ENNISS

Robert S. Enniss has been named sales manager of International Paper Co.'s Georgetown, S. C., shipping container plant, announced Arthur B. Damon Container Div. general manager.

JOY MFG. UPS CARTWRIGHT

John P. Cartwright has been appointed sales manager, industrial sales, for Joy Mfg. Co., Pittsburgh. He was formerly Washington district manager.

WHARTON TO CONTAINER LABS.

Thomas P. Wharton has been elected vice president of Container Laboratories, Inc., packaging consultants.

VITRO BUYS THIEBLOT

Vitro Corp. of America had contracted to acquire the majority interest in Thieblot Aircraft Co., Inc.

AHLMA MEET CONTINUED

(From Page 29)

"A Reporter Views Home Laundry Appliance Merchandising", an address by Jack Lane, Associate Editor, Special Projects, *Advertising Age*, presented a new concept of buying motive. Lane reported that motivational research is of growing importance in today's market, and that it is not only necessary to know *what* the customer wants to buy and *when*, but also *why* she is interested in a particular product, brand or feature.

A look into the future at the potential market ahead for home laundry appliances was given by Dr. Philip M. Hauser, University of Chicago, population expert, who spoke on "Population and Boom Market Ahead." He said that population in the United States will grow by 25,000,000 to 28,000,000 persons between 1950 and 1960. He predicted a total U.S. population by 1975 of between 207 million and 228 million people.

"Industries like the American Home Laundry Manufacturers' Association may look forward to more household units and large numbers of children for at least a generation — to more need for home laundries and more work for the home laundries to do!"

Speaking in agreement with Dr. Hauser was Arthur Rosenbaum, Manager, Economic Research, Sears Roebuck & Co., who spoke on "How Durable is Consumer Durable Demand?" Rosenbaum noted, however, that immediate sales of general merchandise durable goods during 1956 will have difficulty in materially exceeding the 1955 volume. He did not predict any serious decline, however. He pointed out that inventory pressure will begin to develop and further curtailment of production will result, even though appliance and house furnishings dealers should benefit from the spillover from autos.

Dr. Roy B. Davis, assistant director, research division of the du Pont Fabrics and Finishes Department, told the meeting of a new enamel finish his firm is now testing and reported it as the most durable appliance finish ever made from organic polymer. He said the new finish is unaffected by stains, has improved soap, heat and blister resistance and is particularly resistant to marring, chipping and mechanical damage.

During the meeting, George P. Lamb, AHLMA's General Counsel, reported on "Washington in the 1956 Election Year", and AHLMA President B. J. Hank made his semi-annual report to the Association.

1906.. ..1956

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All because of You!

Everyone's proud when they celebrate their 50th year in business . . . and we're no exception . . . but people like you made it possible. Working with us you have helped us design, engineer and produce stampings that have cut your costs and resulted in better products for American Industry. Sure, we have the know-how the best facilities but success comes only when customers are satisfied . . . so, again, we're proud but more than that, we're grateful to you for making these 50 years possible.

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EXPANDED CAPACITY—NOW 2 LARGE PLANTS

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One of Efficient's Six Large Presses for Die Tryout

Cut Finishing Costs with EFFICIENT Tooling

Whatever your tooling requirements, we can build dies that give you long, trouble-free production runs—leave you no metal finishing problems. Let us help you simplify your manufacturing operation, step up your stamping output and lower your unit cost, while assuring consistent high quality.

We deliver sample parts for approval, before dies are shipped. Let our engineers consult with you, work with you, or furnish quotations.

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August · 1956

safe transit

FROM ASSEMBLY LINE TO FINAL CUSTOMER

August, 1956

safe transit

editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

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DANA CHASE PUBLICATIONS
York Street at Park Avenue
Elmhurst, Illinois

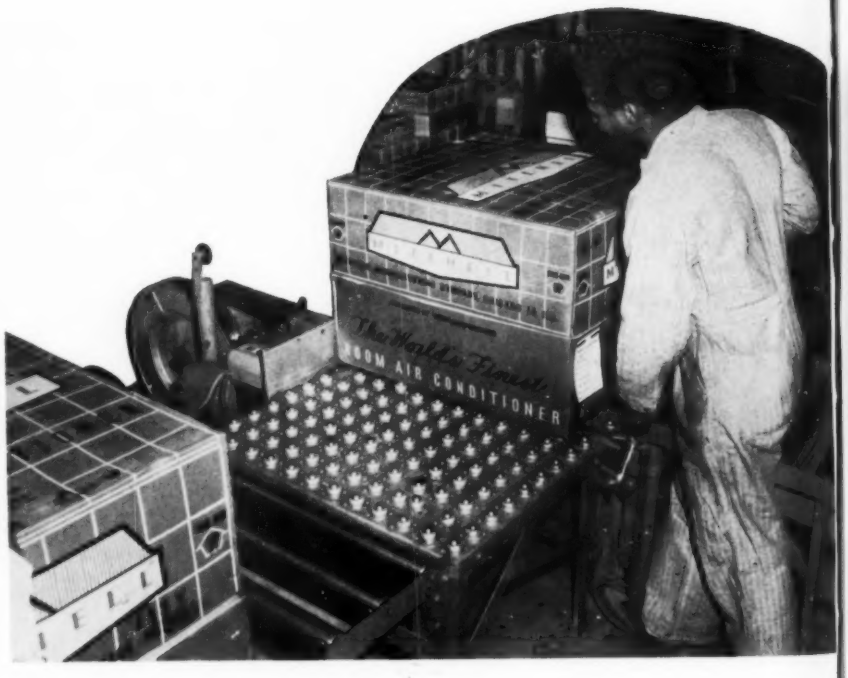
published monthly as special section of finish — the magazine of appliance and metal products manufacturing

Exclusive feature finish

Packaging Mitchell air conditioners

air conditioner manufacturer's set-up designed for maximum output at minimum cost. Unique elevator system lowers packages five stories

by Stanley P. Rhein • PRODUCTION MANAGER, MITCHELL MFG. CO., CHICAGO



The present packaging operation at Mitchell Manufacturing Co., Chicago, is the result of five years of constant study and improvements. Mitchell packages its products in both corrugated and cleated plywood boxes and has its main package line situated on the fifth floor of the multi-story operation in a section of the plant just off the main assembly line.

Included in the roller conveyor set-up are an air-powered hydraulic hoist which elevates the packages for bolting in the skid pieces, a semi-automatic strapping set-up that has a 75 per hour capacity, and a subveyor system that speeds the packages down from the line to the ground level loading docks.

Initial steps in packaging

In the packaging of the ¾ ton Mitchells, the company is presently using a corrugated container. Units received from the final inspection stations are rolled, via gravity conveyor, to the first staging area, where the UL sticker and wiring diagrams are adhered. A Canadian label is also attached, making the unit ready for export without any additional handling.

Introduction of the chassis

A feeder line monorail conveyor system comes into contact with the packaging line at the next point. This conveyor feeds, from the lower floor level, the outer cabinet, and the packaged decorative fronts, in continuing sequence. The chassis is removed from the conveyor and set on the two positioned 275 lb. test paper skid pieces.

For these skids, 275 lb. test paper is folded six times and stapled, with a steel retainer cup set into place for holding the skid bolt. The two skid pieces are positioned at fixed stops on the hoist table, which is conveyor level.

When the outer cabinet is positioned on the hoist table, the chassis assembly is pushed into the cabinet, utilizing the picture frame (a thrust out part of the assembled unit) as a stop.

The pneumatic hoist, operating at 100

to Page ST-5 →

The Chicago Mill engineered and laboratory-tested container, designed specifically for air conditioners, is shown in use at the Mitchell Manufacturing Company plant.

here's the most practical container for shipping air conditioners!

In order to meet the requirements of the growing air conditioning industry, Chicago Mill had its engineers design the best possible container for the protection and shipment of air conditioners. The hinged corner plywood container that was developed offers these advantages:

- Maximum protection
- Low cost
- Fast assembly
- You can stack them 20 high for compact storage wtih a good factor of safety

Contact your Chicago Mill representative for complete information.

75TH YEAR

Wirebound
Nailed or Hinge Corner
Cleated Plywood
Cleated Craveneer
Cleated Corrugated
Watkins Type Containers
Shop and Tote Boxes
Woodsteel Nesting Boxes

★

FOR DOMESTIC OR EXPORT
FOR PEACE OR DEFENSE

A shipping container for every shipping purpose

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The Finest Products Go In Watkins Containers

They are preferred because of:

1. Low Cost
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THE **WATKINS CONTAINER** MANUFACTURERS

CARTON BOTTOMS, *delivered flat, are stapled into shapethe power hoist. The cabinet is then set atop the skid pieces, with the end flap left open (photo 1) for receipt of the as-and the assembled unit is inserted. The hoist is raised for sembled unit. Skid pieces, made up of 6 folds of 275 lb. paperthe hand tool bolting operation with the one man on each and fitted with bolt retainer cups, are positioned (photo 2) onside of the hoist securing the four bolts through the pallet.*

MITCHELL CONTINUED

psi, is then activated and raises the unit into the air above 64". Line air is supplied throughout the plant and provides power for the hoist as well as for the impact drivers which, manipulated by a man on each side of the conveyor, are used to drive ½" diameter x 13 thread x 1½" cadmium plated bolts through the skids and openings of the cabinet and into the conditioner base. It might be well to point out here that the bolt retainer in the base is of the bonnet type and is projection welded to assure water tightness.

Introduction of the carton

With the unit bolted down (four bolts, one at each corner, are used) the hoist is then leveled to the conveyor, and two men slip the unit into the bottom carton assembly.

Carton bases are supplied to the line from flat stock; one man working on a stapling machine staples up three sides of the carton, leaving the end flap open for insertion of the unit.

This operation is materially speeded and eased by means of two fork projections which slip over the carton bottom. The unit slips over the forks and, without sliding on the cardboard, falls into place as the carton slips away from the forks. This is well illustrated in an accompanying photo.

An outer liner made of a continuous folded piece is then opened and inserted around the cabinet and inside the carton bottom. An inner liner is then inserted inside the outer liner and the cabinet. This provides absolute protection and elimination of rubbing. Both liners are made up of 275 lb. test paper.

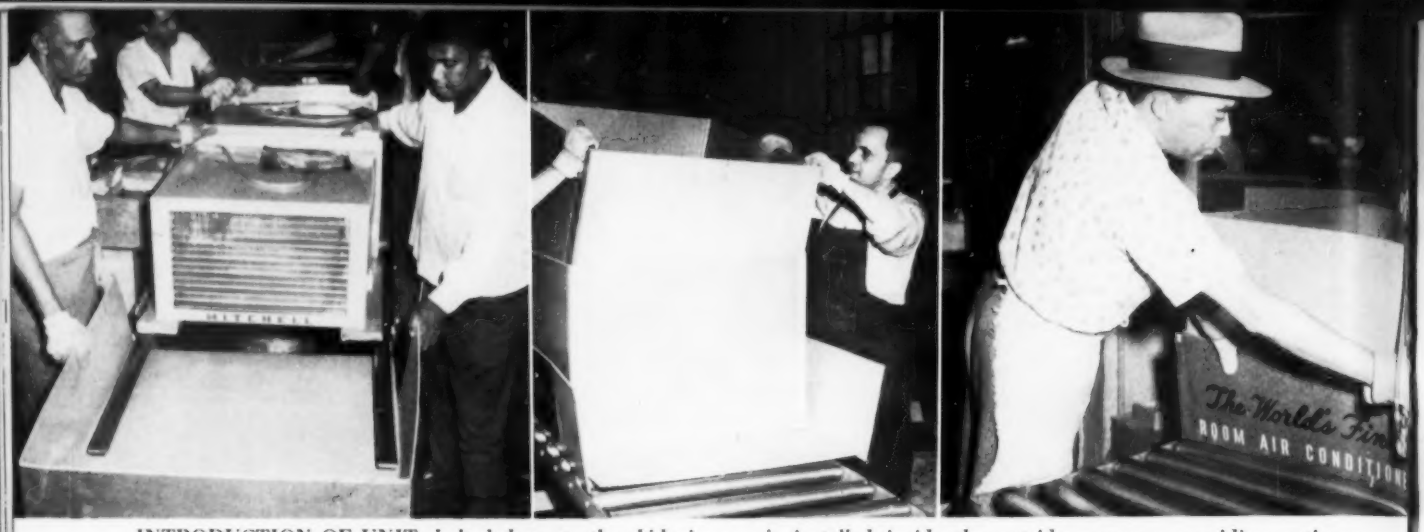
At this point, the electric cord is taken from the cabinet, where it has been inserted during assembly, and placed alongside the cabinet, in a space previously alloted for it, between the inner and outer liners.

At this point, the installation kit, in a sealed carton, is fitted flush against the face of the unit inside the box, making the whole area filled and snug.

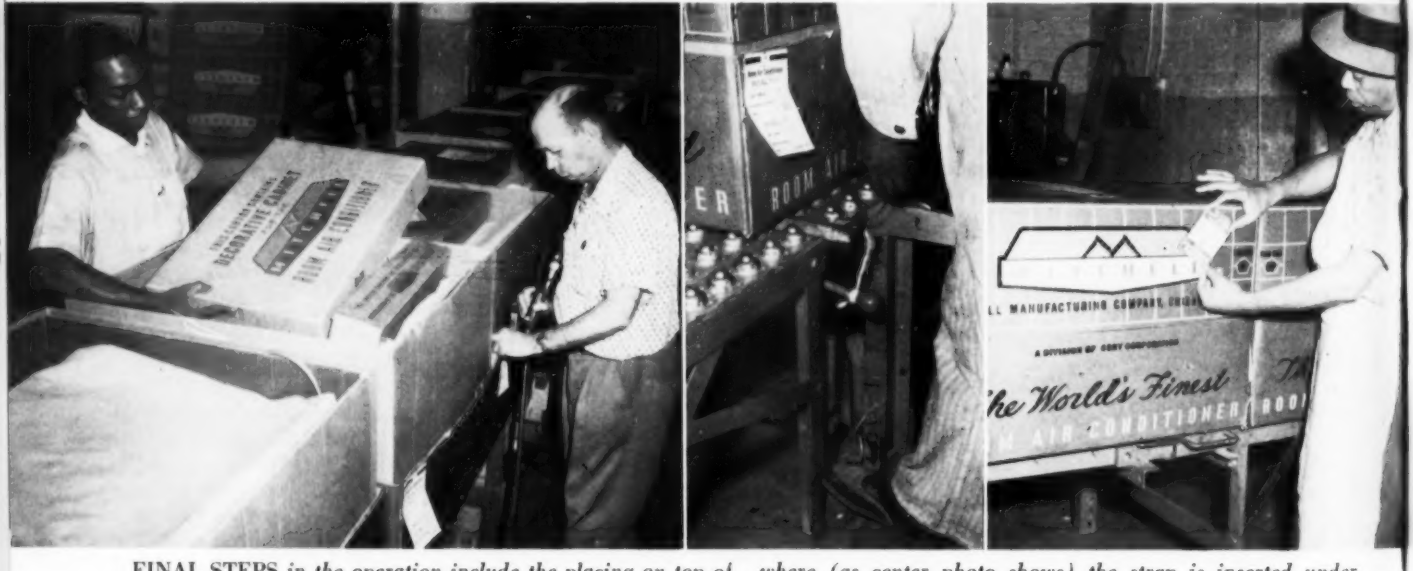
The final flap is then drawn up and stapled into place by means of an air power stapler located over the line. A layer of padded paper is then placed over the unit covering the entire top area. Atop this are placed two cardboard fillers which will be used to hold

to following Page →

HOME CONDITIONERS ARE PACKED in cleated plywood containers. The units are assembled with the package base, a wooden pallet, used as platform on the assembly line. The addition of the wraparound and top are quickly accomplished, and after nailing and attachment of a Safe Transit Sticker, are ready for shipment.



INTRODUCTION OF UNIT, *bolted down to the skid pieces, is simplified by means of these fork tines (photo 1) which allow the conditioner to be put into carton without rubbing over carton bottom. An inner cardboard wrapper (photo 2) is installed inside the outside wrapper, providing optimum protection for the unit. After the insertion of the inner and outer liners, the final flap of the bottom is folded up and stapled into place. Installation kit is then inserted.*



FINAL STEPS *in the operation include the placing on top of the unit of the carton containing the plastic decorative cabinet. Two filler pieces are used to hold carton snug. The "inspection traveler" is then stapled on. After the carton top is slipped over the package, it goes on to the strapping table where (as center photo shows) the strap is inserted under package and, with the release of the foot pedal, is tensioned, crimped and cut. After the two bands are set, the unit gets a Safe Transit Label and sent on to shipping.*

All photos in this report are finishfotos

MITCHELL CONTINUED

the packaged decorative front in place.

The installation kit is a packaged carton previously made up in the secondary area below and supplied the main line in skid loads, each containing (200) kits. Inside this carton is everything needed for installation of the cabinet, including even a wrench for use in removing the skid bolts.

At this point, the package and conditioner are given the final inspection. The "inspection record card - - a detailed report filled in at each check point in the assembly and testing sections - - is checked approved at the final inspection point and removed from the unit, to be retained by the Quality Control Division, as their permanent record of this unit. One copy of the "production traveler card" indicating model number, unit serial number and compressor serial number is stapled to the outside of the unit carton, and the remaining copy is torn off and returned to the Production Control Division for daily packing record. Next, the warranty sheet and instruction book are laid atop the package and the carton top slipped over the unit. The model and voltage of the unit is then rubber stamped on both sides of the carton.

The unit now reaches the banding area where there are two roller top tables (see May *finish*, page ST-6 for explanation) in the conveyor line. The first table is part of the automatic strapping set-up. The carton is positioned, and, by a touch of the foot on the lever, a predetermined length of strap is projected over the top of the carton toward the operator.

The operator inserts this into the band slot at the bottom of the carton, and, by releasing the foot pedal, the strap is automatically tensioned, crimped and cut. Two bands are used for each package, and the ball bearing table top materially speeds positioning of the package for the operations. The unit is then pushed to the adjoining ball bearing table top, where it is turned and fed to the conveyor leading to the subveyor system.

Just prior to this, however, the Safe Transit Label is attached, to show ship-

pers, dealers and customers that the package and the product, as a unit, have been thoroughly tested and approved, providing the best possible in-transit protection available for the Mitchell unit.

Delivering to ground floor

The unit is then rolled into the subveyor system. This system, which carries the unit vertically down five floors to the shipping dock, has the following features. Powered by a 3 hp motor through chain drives, the floor, which can hold one unit, automatically levels itself with the end of the section's conveyor line. This floor has roller shelves to simplify loading and unloading. The unit is pushed into the subveyor, and a limit switch is activated as the container closes against the conveyor back. This motivates the subveyor drive, which carries the conditioner down five floors to the shipping dock where it automatically stops, level with the offbearing conveyor line.

The limit switch set-up also provides system protection. No other package can be entered until the unit is removed. Although the speed is not necessary in operation at present, subveyor installation engineers report that the unit can handle up to 6 conditioners a minute should it be required. At the shipping dock, a system of roller conveyors on wheels is used to direct package flow to any of five truck loading locations.

Two men, using a portable conveyor, load the trailers — 90 units per trailer. The stacked units fit snugly, and no protection or load locking devices are necessary.

Packaging the larger line

Simplified, speedy operations also exemplify the packaging line for the larger home conditioners which Mitchell manufactures. Cleated plywood containers are used for these units. The packaging line receives the completed assemblies riding on the cleated base and previously mounted in place with set bolts. The supplied covers, delivered flat and forming a complete wraparound, are unfolded and slipped over the units. The cleated plywood tops are then put into place, and in a simple nailing operation, the tops are joined to the package walls and the walls joined to the cleated base. The "inspection travelers", detailed earlier in this report, are then checked, and one copy of the inspection reports stapled onto the packages before they are Safe Transit labeled moved away for delivery to the shipping department.

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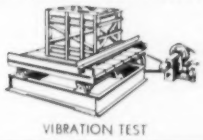

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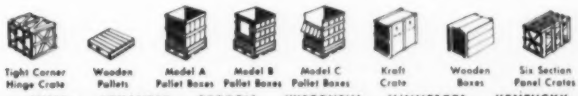

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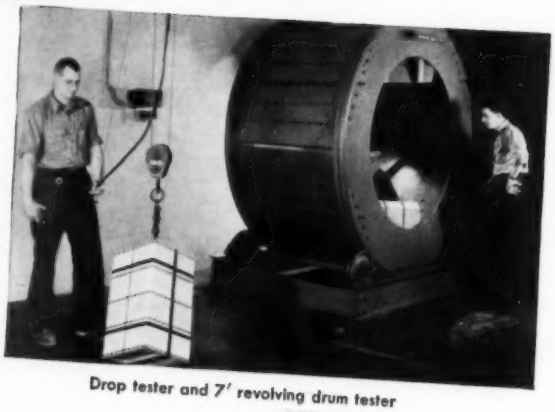

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New Laboratory Certifications - Three new laboratory certifications make a total number of 53 Safe Transit Laboratories located throughout the United States and Canada. Newest certifications are:

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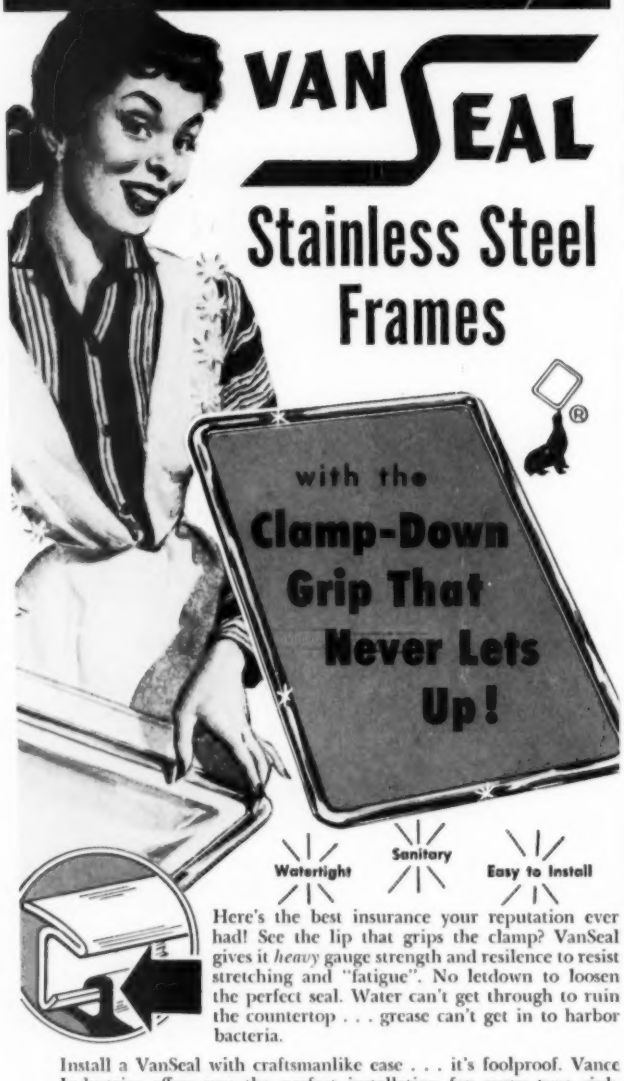

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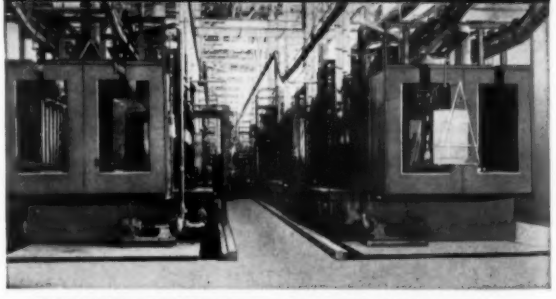

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